Le Moyne College

Audio-Video Consulting & Contracting

Remote Recording

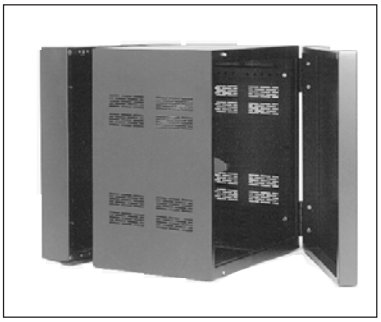
Tour Support and Logistics

Athletic Complex Soccer Field

19100 Equipment Technical Data Sheets

BEICKERT AUDIO
219 Arnold Ave, Syracuse, NY 13210

324-12



324-15

FEATURES

- Sturdy wall-mount cabinet protects equipment and saves valuable floor space
- Selection includes models with 12" and 15" deep center mounting sections
- Reinforced frame flanges, plus corner-brace structural supports and electric-welded seams & miters provide stability for mounted equipment
- Punched vents assure heat dissipation
- Wire management provisions allow organized wire access
- Adjustable mounting rails provide flexibility
- New cutout on rear section on all models except 7 RU and 10 RU

APPLICATIONS

The 300 Series cabinets have been engineered to provide full functional and mechanical flexibility for wall-mounting standard 19" wide rack equipment. Sectional assemblies may be installed to accommodate right or left-hand hinging applications, and are ideal for use in areas with limited floor space or "protected" access requirements. Units are commonly used to house electronic switching, monitoring, sound, and communication controls in school auditoriums, health care facilities, presentation/conference centers, manufacturing facilities, laboratories, public buildings, and recreational complexes. They can also be used to house computer control equipment, studio electronics, and building management/security systems in commercial, industrial, institutional, and military applications.

W/DOOR	PANEL OPENING*	CABINET O.D.		SECTION DEPTH	
12" CTR MODELS		WIDTH	HEIGHT	REAR	CENTER
307-12	12⅜" (7 RU)	20⅝"	15¼"	4½"	12"
310-12	17⅝" (10 RU)		20½"		
312-12	21⅛" (12 RU)		24"		
316-12	28⅛" (16 RU)		31"		
324-12	42⅛" (24 RU)		45"		
15" CTR MODELS		WIDTH	HEIGHT	REAR	CENTER
310-15	17⅝" (10 RU)	20⅝"	20½"	4½"	15"
312-15	21⅛" (12 RU)		24"		
316-15	28⅛" (16 RU)		31"		
324-15	42⅛" (24 RU)		45"		
335-15	61⅜" (35 RU)		64¼"		

* Listed panel opening allows ⅛" clearance at top and bottom (¼ total)

Specifications subject to change without notice

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Fig. 1:Rear Section Mounting Holes Knockouts
(Note: -61 Models have 8 mounting holes)

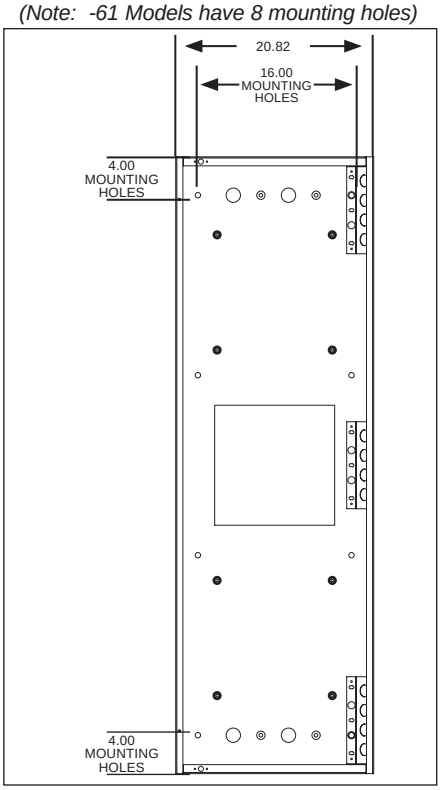
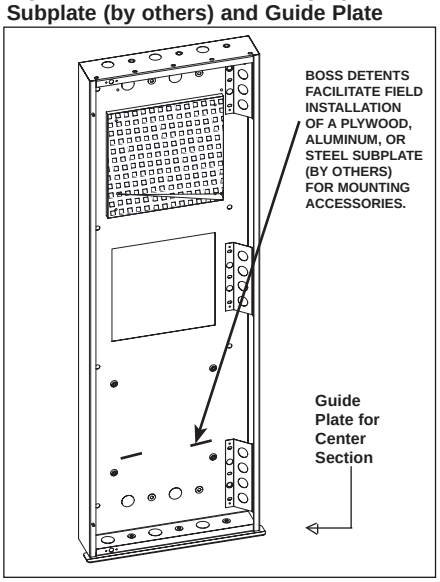


Fig. 2: Rear Section Featuring Optional Subplate (by others) and Guide Plate


BOSS DETENTS FACILITATE FIELD INSTALLATION OF A PLYWOOD, ALUMINUM, OR STEEL SUBPLATE (BY OTHERS) FOR MOUNTING ACCESSORIES.
Guide Plate for Center Section

GENERAL DESCRIPTION

The 300 Series wall cabinets are distinguished by center-section depths of 12" and 15", respectively. Basic model includes three, 16-gauge CRS sections which include a 2" deep, solid-steel front door, a 12" or 15" deep center section with adjustable mounting rails, and a 4½" deep rear door. Panel space openings range from 7 RU to 35 RU (depending on series - see chart on page 1). Enclosures are equipped with convenient and useful provisions for custom cabinet mounting, wire management, equipment mounting, and structural support (see below for detailed information). Cabinet is finished in #962 black epoxy.

Mounting Provisions

Mounting holes, located on the back panel of the rear door, enable the pre-assembled cabinet to be easily secured to a wall, post, support, or other surfaces for elevated applications (see Fig.1) These convenient cabinets are designed for right-hand hinging applications, but assemblies can be inverted 180˚ to facilitate left-hand hinging. Rear section hinges are bolted, not welded, to ensure easy retrofit capability. The removable pin-type hinges holding the center and rear sections together facilitate independent pre-installation of the rear section. This feature also permits efficient surface or recess installation. Models with panel heights of 7 RU, 10 RU and 12 RU have two hinges, while 16 RU, 24 RU and 35 RU panel space cabinets each have three hinges. Rear sections are now equipped with a 12½" x 12½" square cutout (12 RU, 16 RU, 24 RU and 35 RU panel height models).

Equipment Mounting & Wiring

All models include one pair of 11-ga. adjustable front-to-rear mounting rails which are tapped 10–32, and manufactured to standard E.I.A. ⅝"–⅝"–½" spacing. Models with panel space openings of 16 RU, 24 RU and 35 RU are equipped with center section mounting rail supports (1 per side) which have slotted cutouts for infinite mounting rail adjustments and open raceways to hold vertically run wire and cable. Smaller models do not require mounting rail supports. Corner brace supports, which straddle the back and side panel of the rear section (hinge side), also feature round (1¼" dia.) wire access holes for harnessing excess wire. The back panel of the rear section is equipped with ¼" deep boss detents which give contractors field flexibility to screw-mount a plywood, aluminum, or steel subplate (not made by Atlas) for mounting accessories such as transformers, power strips, and phone relay systems inside the cabinet. Boss detents are on 12" centers and vary depending upon model height (10 RU, 12 RU and 16 RU panel space models have four detents 2 RU panel space models have six detents and 35 RU panel space models have eight detents (see Fig. 2). Note: Model 307-12 does not have provisions for mounting subplate.

Conduit Knockouts

The 300 Series models have 20 conduit knockouts on the rear section, with the exception of the 307-12 which has 16. Conduit arrays are located at the top and bottom of the back panel (except 307-12 which has a centered array), as well as on the top and bottom back flanges. Panel arrays consist of four knockouts: two 1" (25mm) standard and two ½" (13mm) / ¾" (19mm) concentric. Top and bottom flange arrays are comprised of six knockouts: three 1" (25mm) standard and three ½" (13mm) / ¾" (19mm) (See Fig. 3).

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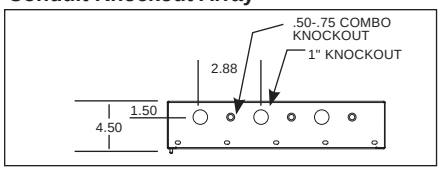
Fig. 3: Rear Section Top & Bottom Flange Conduit Knockout Array



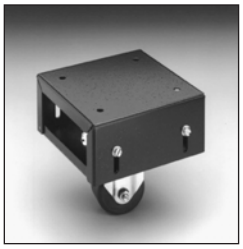
Ventilation

Stamped perforated vents, located on both sides (top and bottom) of the center section, provide maximum ventilation for rack-mounted electronics (four vent patterns per side on 12" deep series, eight per side on 15" deep.)

Structural Support

Series 300 cabinets offer exceptional structural support. The units' one-piece front and rear sections are strengthened with frame flanges on bottom, top, and sides. Center sections also have "L"-shaped gussets (brackets) which are plug-welded, joining bottom and top panels to side panels. Series 3xx-12 and 3xx-15 have a total of 8 & 12 brackets, respectively. Rear sections have corner brace supports which bridge the back and side panel (hinge side) giving the back (mounted) panel extra reinforcement for tension relief (see Fig. 3). Units also have electric-welded seams and miters which bolster the cabinets' overall bonding. The center section offers maximum reinforcement provisions, such as a uniquely designed center section guide plate that reduces potential sagging by distributing cabinet and equipment weight to rear section. The 11-ga., 1-⅞" wide guide plate, which mounts to the rear section's bottom flange, provides a ¾" lip for added support to the center section when the cabinet is open or closed. The plate also ensures that an equipment-weighted center section will close properly, by "guiding" alignment pins into respective holes.

CT31A. This optional heavy-duty caster support reduces the load bearing requirements of the wall by supporting the center section weight when opened and closed (typically used on 35 RU panel space models). Cabinet must be mounted 6" from the ground. Support is constructed of formed, 14-ga. CRS and includes heavy-duty, zinc-plated caster with a black, hard-tread wheel. The caster adjusts in height from 5½" to 7½" and is supplied with drilling template for easy installation. Finished in black *(Note: before installing the CT31A, the center section guide plate must be removed) (Only one CT31A required per cabinet).*



ARCHITECT AND ENGINEER SPECIFICATIONS

The sectional wall mounting cabinet shall be Atlas Sound Model __. It shall be constructed of 16-gauge CRS throughout. Hinges shall be bolted, not welded. All sections shall be of one-piece construction with electric-welded seams and miters. Cabinet shall have provisions which allow the unit to be inverted for accommodating left-hand hinging applications. Rear section shall have concentric ½" (13mm) and ¾" (19mm) knockouts on the top and bottom surface panel, as well as the flange panels at the top and bottom of the rear panel.

Center section shall be secured with screw-type locking rods and alignment pins. The center section shall be equipped with adjustable, front-to-rear mounting rails tapped with 10–32 holes on E.I.A. 19" spacing. Units shall have slotted rail supports for mounting rail adjustment and wire management purposes. Standard front door shall be 2" (51mm) deep, and constructed of one-piece 16-ga. CRS, with perforation vents and cylinder lock.

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INSTALLATION

Fig. 5: Minimum mounting space required to facilitate opening center section 90° with front door open.

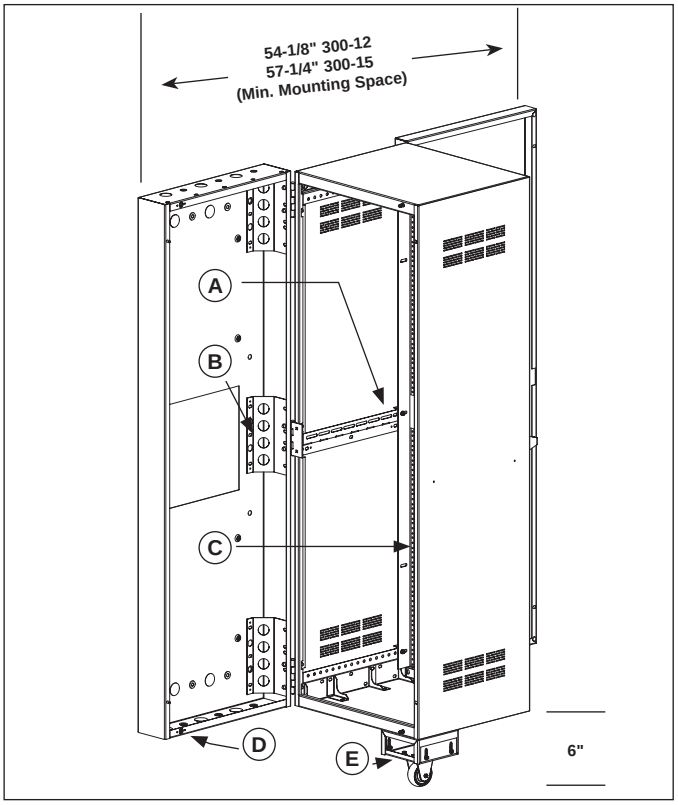
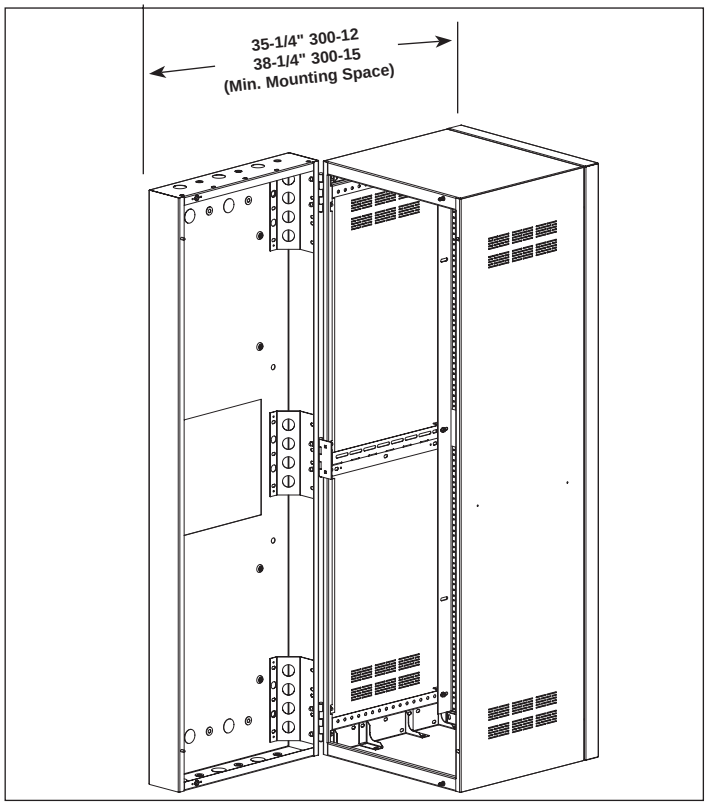


Fig. 6: Minimum mounting space required to facilitate opening center section 90° with front door closed.



A) Mounting Rail Supports

B) Corner Brace Supports

C) Adjustable Front-to-Back Mounting Rails (Standard E.I.A. Spacing)

D) Center Section Guide Plate

E) Optional Model CT31A Caster Support (Requires the cabinet to be mounted 6" from the floor.)

Installation Placement Considerations

- Determine left/right swing distance to adjacent walls.
- Decide if optional caster support Model CT31A will be used to reduce wall load-bearing requirements (recommended on 35 RU and some 24 RU panel space cabinet installations). If the caster will be used, cabinet must be mounted 6" from the floor.

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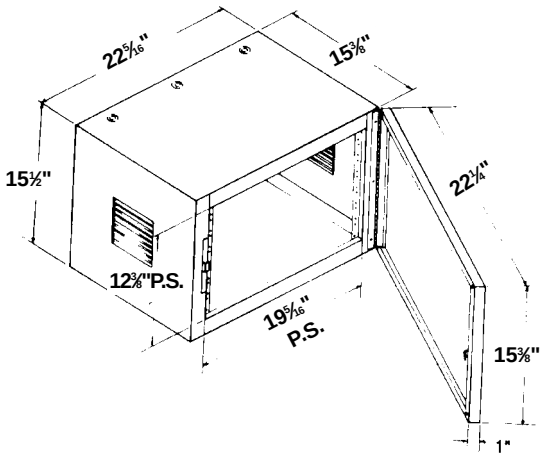
WALL MOUNT ENCLOSURE

600-12



FEATURES

- 16 Gauge CRS all welded construction with 11guage CRS tapped mounting rails
- Locking front door
- Vents on each side
- 10-32 pan head screws for panel mounting
- Completely assembled
- Convenient Pre-Punched Back Panel for Wall Mounting

GENERAL DESCRIPTION

Atlas Sound Model 600-12 is a surface mounting wall cabinet used for housing small electronic system installations including 19" wide amplifiers, tuners and associated communication controls for schools, churches, clubs and recreation facilities. The 600-12 has a vertical panel opening of 12⅜" (314mm) and is constructed of 16 gauge CRS. Louvers on each side of the cabinet are provided for ventilation. The 11 gauge CRS panel mounting rails are recessed ⅜" (16mm) for a "flush" look. Locking front door is standard. Panel-mounting screws (10-32 x ¾") are provided for equipment panel and accessory mounting. Mounting rails are tapped 10-32 on EIA spacing.Three double ½" (13mm) and ¾" (19mm) knockouts are provided on the top and bottom of the cabinet for wire entry. Four keyhole slots for wall hanging are provided on the back panel. The 600-12 is shipped completely assembled and is finished in (#962) black epoxy powder coat.
UL Listed version is available.

ARCHITECT & ENGINEER SPECIFICATIONS

The wall mounted cabinet shall be Atlas Sound _____ (Model 600-12) or approved equal. It shall be constructed of 16 gauge CRS with 11 gauge CRS mounting rails. The cabinet shall have a locking front door. Internal louvers shall be provided for ventilation. Three double ½" (13mm) and ¾" (19mm) knockouts shall be provided on the top and bottom of the cabinet to facilitate wiring. Four keyhole slots shall be provided on the back panel to accommodate wall hanging. The cabinet shall accommodate standard 19" (483mm) rack panels and have a vertical panel opening of 12⅜" (314mm). The cabinet shall be provided with twelve 10-32 x ¾" (19mm) panel mounting screws and the mounting rail shall be tapped 10-32 on EIA spacing. Enclosure shall be shipped completely assembled.

MODEL	WIDTH	HEIGHT	DEPTH	PANEL SPACE	WEIGHT
600-12	22 5/16" (567mm)	15½" (394mm)	15⅜" (391mm)	12⅜" (314mm)	45 lbs. (20.41 kg)

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DS2

DS5

DS7(E)

DS14

FEATURES

- Versatile Stands Fulfill Functional and Aesthetic Miking Requirements for Microphone Placement
- Quality Construction Assures Extended Service and Quality Appearance
- Weighted Bases Provide Maximum Stability

APPLICATIONS

Atlas Sound microphone stands meet functional and aesthetic requirements for microphone support and placement within contemporary and traditional decors. The extensive selection includes models for use on banquet and meeting room consoles, court room and dispatcher desks, sports/recreation booths, church pulpits, and telephone switchboards. High-stability units are also suited for application in various sound reinforcement systems, as well as broadcast and recording studios.

GENERAL DESCRIPTION

Atlas Sound brand microphone desk stands assure optimum stability and "like new" appearance for many years of service. Chrome and ebony finished bases are attractively styled and present a quality appearance for traditional and contemporary decors. Microphone placement and positioning is enhanced by the "locking nut" feature which securely fastens adapters and holders to the desk stands. The seamless tubing is ⅝" cold rolled steel and terminates in the industry standard ⅝" - 27 thread pattern for use with microphone accessories. Fixed-height stand selection includes Models DS2, DS5(E), and DS14. Adjustable-height stand Model DS7(E) features the wearproof, Atlas Sound grip-action clutch for positive locking control.

DS2. Low silhouette stand features an integral tension variable mount to reduce conductivity of external mechanical vibrations. High-stability, die-cast metal base with protective pads includes notched area for convenient placement of cards or pens. Fixed-height tubing is chrome plated. Base is supplied in non-reflective ebony.

DS5/DS5E. Fixed-height stands include traditional, circular cast iron base and chrome-plated tubing for application with any standard microphone. DS5 features chrome plated tubing, DS5E is finished in ebony epoxy.

DS7/DS7E. Versatile stands may be adjusted from 8" to 13" and include a grip-action clutch and ebony-finished cast iron base. DS-7 features chrome-plated tubing; DS7E is supplied with non-reflective ebony tubing.

DS14. Professionally styled stand includes die-cast "wishbone" shaped base. Finished in ebony and features 3" high chrome tubing.

MODEL	BASE	STAND HEIGHT	BASE MATERIAL	BASE FINISH	TUBE FINISH	WEIGHT
DS2	6" L x 4" W	4"	Cast Zinc	Ebony	Chrome	2 lbs. (1 kg)
DS5	6" Dia.	5"	Cast Iron	Ebony	Chrome	3 lbs. (1.4 kg)
DS5E	6" Dia.	5"	Cast Iron	Ebony	Ebony	3 lbs. (1.4 kg)
DS7	6" Dia.	8" - 13"	Cast Iron	Ebony	Chrome	3 lbs. (1.4 kg)
DS7E	6" Dia.	8" - 13"	Cast Iron	Ebony	Ebony	3 lbs. (1.4 kg)
DS14	Wishbone	3"	Cast Iron	Ebony	Chrome	2 lbs. (1 kg)

Specifications subject to change without notice

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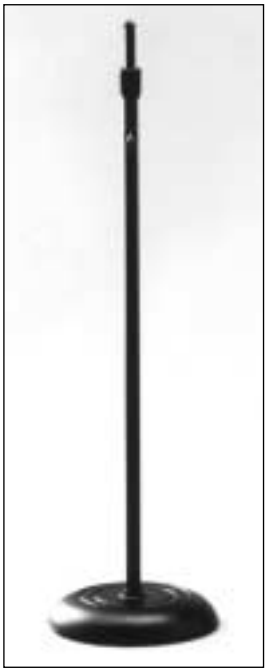
MS-10C



MS-10CE

FEATURES

- Economical, Industry Standard Floor Stands Suitable for a Variety of Applications
- Wearproof, Three-Piece Clutch Offers Secure, Fast, and Noise-Free Height Adjustment
- Edge-Concentrated, One-Piece Circular Base Ensures Maximum Stability
- Available in Choice of Chrome or Non-Reflective Ebony Epoxy Finish
- Field Serviceable Parts Guarantee Long Product Life

Steel tubing is finished in a choice of mirrored chrome or non-reflective ebony epoxy (E).

Anti-vibration cap absorbs incidental vibrations and sounds.

Lock-nut ring securely positions tubing to base.

Atlas Sound stands are threaded ⅝"-27 and include a lock-nut ring for versatile positioning of accessories.

Famous Atlas Sound clutch won't slip under pressure. Three-piece assembly is also field serviceable.

Bases are high-stability cast metal equipped with shock absorbing rubber pads.

APPLICATIONS

Atlas Sound® brand microphone floor stand Models MS-10C/MS-10CE are the industry standard for application in schools, churches, recreation complexes, lounges, restaurants, conference areas, meeting rooms or wherever sound reinforcement or communications systems are applied. Outstanding U.S. craftsmanship and high-quality materials are combined to make these functional, full-height stands extremely stable and durable-serving as exceptional values for performers and presenters.

GENERAL DESCRIPTION

MS-10C / MS-10CE. These all-purpose chrome and ebony finished stands, respectively, are quality, long-lasting models which feature durable tubing, the famous Atlas Sound® wearproof clutch, and a 10" dia. die cast circular base. The three-piece clutch provides positive locking control and is able to withstand years of stage and studio handling. The base features edge-concentrated weight distribution and is equipped with rubber pads to absorb shock and protect floor surfaces.

The ⅝" and ⅞" dia. tubing is fully adjustable with a vertical extension ranging from 35" to 63". Tubing is manufactured of cold rolled steel and terminates in the industry standard ⅝" - 27 thread suitable for microphone clamps and accessories (see reverse side). Top and bottom lock-nut rings are included for versatile and secure positioning.
Model MS-10C is finished in chrome; Model MS-10CE is finished in ebony epoxy to eliminate reflections caused by high-intensity lighting. This durable epoxy finish will withstand the rigors of repeated use and frequent transportation.

MODEL	HEIGHT SPAN	BASE DIAMETER	TUBE FINISH	BASE FINISH	WEIGHT
MS-10C	35" - 63"	10"	Chrome	Ebony	9.0 lbs.
MS-10CE	(89 - 160 cm)	(25 cm)	Ebony	Ebony	(4.1 kg)

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ACCESSORIES

BOOM ATTACHMENTS

BB-28X(E)	Adj. 26 ¼" - 383⁄4" Length, Chrome (Ebony)
BB-77(E)	Fixed 34" Length, Fixed ¾ lb. Counterweight, Chrome (Ebony)
PB11X(E)	Adj. 16 ¼" – 24 ½" Length, Fixed ¾ lb. Counterweight, Chrome (Ebony)
PB15(E)	Fixed 34" Length, Counterweight, Fixed 3⁄4-lb. Chrome (Ebony)
PB21X(E)	Adj. 25 ¼" – 38 ½" Length, Fixed ¾ lb. Counterweight, Chrome (Ebony)
PB25	Fixed, 34 ½" Length, Adj. 2 lb. Counterweight, Chrome
PB25X	Adj. 32" – 51 ½" Length, Adj. 2 lb. Counterweight, Chrome

GOOSENECK FLEXIBLE EXTENSIONS (.338" I.D.)

GN-6(E)	6" L, Chrome (Ebony)
GN-13(E)	13" L, Chrome (Ebony)
GN-19(E)	19" L, Chrome (Ebony)

CLIP-MOUNTING MICROPHONE ACCESSORIES

LO-2B(E)	Lock-On / Mic Clip Disconnect, Chrome (Ebony)
SO-1B	Snap-On / Mic Clip Disconnect, Chrome
SW-1B	Gyro-Microphone Swivel, Chrome
TM-1(E)	Twin Microphone Mount, Chrome (Ebony)
VM-2	Compact, Shock Isolation Accessory, Chrome (replaces VM-1)

MULTI-PURPOSE CLAMPS

CO-1B	Adapter & Clamp, ⅝" -27, Max. Opening ⅞", Ebony
MAC-1	Adapter & Clamp, ⅝" -27, Max. Opening 1 ½", Ebony

CABLE HANGERS & TUBE EXTENSIONS FOR USE WITH COUPLING ADAPTERS

CH-1B(E)	Cable / Tambourine Hanger, Chrome (Ebony)
AD-7B	3" Long Tube, ⅝"-27 Male Thread, Chrome Plated
AD-8B	6" Long Tube, ⅝"-27 Male Thread, Chrome Plated
AD-14B	90° Angle Tube, ⅝"-27 Male & Female Thread, Chrome Plated, 4"H x 4" Ext.
AD-19B	90° Angle Tube, ⅝"-27 Male & Female Thread, Chrome Plated, 6"H x 3" Ext.

REPLACEMENT KITS FOR MS-10C AND MS-10CE

MSC	Chrome Tube Assembly (⅝" - ⅞") with Clutch
MSCE	Ebony Tube Assembly (⅝" - ⅞") with Clutch
MSC-K	Clutch for Chrome Stands with ⅞" Dia. Tubing
MSCE-K	Clutch for Ebony Stands with ⅞" Dia. Tubing
MSAC-K	Miscellaneous Parts Kit with (1) Lock Ring, (1) Anti-Vibration Cap, and (3) Rubber Base Pads

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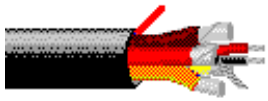
1217B Paired - Flexible, Low-Capacitance Cable



For more information please call
1-800-Belden1

See Put-ups and Colors

Related Documents : No. 7 for Snake Cables.pdf

Description:

22 AWG stranded (7x30) TC conductor, Datalene® insulation, individually shielded with Beldfoil® (100% coverage), numbered/color-coded PVC jackets, pair jackets and shields bonded to both strip simultaneously with automatic stripping equipment.

PHYSICAL CHARACTERISTICS:

CONDUCTOR:

Number of Pairs	4
Total Number of Conductors	8
AWG	22
Stranding	7x30
Conductor Diameter	.030 in.
Conductor Material	TC - Tinned Copper

INSULATION:

Insulation Material Trade Name	Datalene®
Insulation Material	FHDPE - Foam High Density Polyethylene
Nom. Insulation Wall Thickness	.015 in.
Insulation Diameter	.060 in.
Lay Length	1.75 in.
Twists/ft.	6.85
Pair Color Code Chart	Red & Black

INNER SHIELD:

Inner Shield Material Trade Name	Beldfoil®
Inner Shield Type	Tape
Inner Shield Material	Aluminum Foil-Polyester Tape
Inner Shield % Coverage	100 %
Inner Shield Drain Wire AWG	22
Inner Shield Drain Wire Stranding	7x30
Inner Shield Drain Wire Conductor Material	TC - Tinned Copper

INNER JACKET:

1217B Paired - Flexible, Low-Capacitance Cable

Inner Jacket Material	PVC - Polyvinyl Chloride
Inner Jacket Nominal Wall Thickness	.015 in.
Inner Jacket Diameter	.153 in.

Inner Jacket Color Code Chart :

Number	Color	Number	Color
1	Brown	3	Orange
2	Red	4	Yellow

OUTER JACKET:

Outer Jacket Material	PVC - Polyvinyl Chloride
Outer Jacket Nominal Wall Thickness	.040 in.
Outer Jacket Ripcord	Yes

OVERALL NOMINAL DIAMETER:

Overall Nominal Diameter	.458 in.

MECHANICAL CHARACTERISTICS:

Operating Temperature Range	-20°C To +60°C
Non-UL Temperature Rating	60°C
Bulk Cable Weight	88.8 lbs/1000 ft.
Max. Recommended Pulling Tension	109 lbs.
Min. Bend Radius (Install)	4.58 in.

APPLICABLE SPECIFICATIONS AND AGENCY COMPLIANCE:

APPLICABLE STANDARDS:

EU CE Mark (Y/N)	Yes
EU RoHS Compliant (Y/N)	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	01/01/2004

PLENUM/NON-PLENUM:

Plenum (Y/N)	N

ELECTRICAL CHARACTERISTICS:

Nom. Inductance	.20 µH/ft
Nom. Capacitance Conductor to Conductor @ 1 KHz	19 pF/ft
Nom. Cap. Cond. to Other Cond. & Shield @ 1 KHz	35 pF/ft
Nominal Velocity of Propagation	78 %
Nom. Conductor DC Resistance @ 20 Deg. C	15 Ohms/1000 ft
Ind. Pair Nominal Shield DC Resistance @ 20 Deg. C	10.6 Ohms/1000 ft
Max. Operating Voltage - Non-UL	150 V RMS, 300 V RMS
Max. Recommended Current	2 Amps per conductor @ 20°C

NOTES:

1217B Paired - Flexible, Low-Capacitance Cable

Notes	Datalene® insulation features include a low dielectric constant and a low dissipation factor for high-speed, low distortion data handling. Physical properties include good crush resistance and light weight. Pair jackets and shields are bonded so both strip simultaneously with automatic stripping equipment.

PUT-UPS AND COLORS:

Item	Description	Put-Up (ft.)	Ship Weight (lbs.)	Jacket Color	Notes
1217B B591000	4 PR #22 FHDPE FS PVC PVC	1000	107	BLACK, MATTE	C
1217B B59500	4 PR #22 FHDPE FS PVC PVC	500	53	BLACK, MATTE	C

C = CRATE REEL PUT-UP.

Revision Number: 1 Revision Date: 08-11-2005

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Belden declares this product to be in compliance with EU LVD (Low Voltage Directive 73/23/EEC), as amended by directive 93/68/EEC.

Detailed Specifications & Technical Data

ENGLISH MEASUREMENT VERSION

1311A Multi-Conductor - Speaker Cable

Description:

12 AWG stranded (7x24x34) high-conductivity bare copper conductors, PO insulation, PVC jacket.
Sequential footage marking every two feet.

Usage (Overall)

Suitable Applications:	Speaker Cable, Direct Burial, Indoor/Outdoor Home Theater, In-Wall Speaker, Outdoor Speaker

Physical Characteristics (Overall)

Conductor

AWG:

# Conductors	AWG	Stranding	Conductor Material	Dia. (in.)
2	12	7x24x34	High Conductivity BC - Bare Copper	.102

Insulation

Insulation Material:

Insulation Material	Dia. (in.)
PO - Polyolefin	.140

Outer Shield

Outer Shield Material:

Outer Shield Material
Unshielded

Outer Jacket

Outer Jacket Material:

Outer Jacket Material
PVC - Polyvinyl Chloride

Overall Cabling

Overall Cabling Color Code Chart:

Number	Color
1	Black
2	Red

Overall Nominal Diameter:	0.352 in.

Mechanical Characteristics (Overall)

Operating Temperature Range:	-20°C To +75°C
UL Temperature Rating:	75°C
Bulk Cable Weight:	64.900 lbs/1000 ft.
Max. Recommended Pulling Tension:	152 lbs.
Min. Bend Radius (Install)/Minor Axis:	3.500 in.

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CL3,CM
CEC/C(UL) Specification:	CM

EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	07/01/2005
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes

Flame Test

UL Flame Test:	UL1581 Vertical Flame and FT-1 Flame Test
CSA Flame Test:	FT1

Suitability

Suitability - Indoor:	Yes
Suitability - Outdoor:	Yes

Plenum/Non-Plenum

Plenum (Y/N):	No
Plenum Number:	6000UE

Electrical Characteristics (Overall)

Nom. Inductance:

Inductance (µH/ft)
.15

Nom. Capacitance Conductor to Conductor:

Capacitance (pF/ft)
22.3

Nominal Velocity of Propagation:

VP (%)
66

Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/1000 ft)
1.6

Max. Operating Voltage - UL:

Voltage
300 V RMS

Max. Recommended Current:

Current
17 Amps per conductor @ 25°C

Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
1311A 0081000	1,000 FT	74.000 LB	GRAY	C	2 #12 PE FRPVC
1311A 008500	500 FT	36.500 LB	GRAY	C	2 #12 PE FRPVC
1311A 0101000	1,000 FT	74.000 LB	BLACK	C	2 #12 PE FRPVC
1311A 010500	500 FT	36.500 LB	BLACK	C	2 #12 PE FRPVC
1311A 1SL1000	1,000 FT	74.000 LB	WHITE 1SL	C	2 #12 PE FRPVC
1311A 1SL500	500 FT	36.500 LB	WHITE 1SL	C	2 #12 PE FRPVC

Notes:
C = CRATE REEL PUT-UP.

Speaker Wire and Cable

Low-Capacitance Oxygen-Free, High-Conductivity (OFHC) Speaker Cable Twisted Jacketed Construction

BRILLIANCE®

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Cond.	Standard Lengths		Standard Unit Weight		Insulation Thickness		Jacket Thickness		Nominal OD		Nominal Capacitance*	
				Ft.	m	Lbs.	kg	Inch	mm	Inch	mm	Inch	mm	pF/Ft.	pF/m
Low Cap • 16 AWG Stranded (65x34) Oxygen-free High-Conductivity Bare Copper Conductors • Conductors Cabled • Unshielded															
Polyolefin Insulation • PVC Jacket (Available in Black, White, Gray, Blue or Green)															
	1307A new	NEC: CMR, CL3R CEC: CMG FT4	2	U-500 1000†	U-152.4 304.8	15.0 29.0	6.8 13.2	.013	.32	.022	.56	.210	5.33	19.9	65.3
Suitable for Direct Burial applications. White and Black jackets are Sunlight-resistant.															
	1308A new	NEC: CMR, CL3R CEC: CMG FT4	4	U-500 1000†	U-152.4 304.8	26.5 54.0	12.0 24.5	.013	.32	.026	.66	.270	6.86	19.9	65.3
Suitable for Direct Burial applications. White and Black jackets are Sunlight-resistant.															
Low Cap • 14 AWG Stranded (105x34) Oxygen-free High-Conductivity Bare Copper Conductors • Conductors Cabled • Unshielded															
Polyolefin Insulation • PVC Jacket (Available in Black, White, Gray, Blue or Green)															
For Audio Use Only	**1309A** new	NEC: CMR, CL3R CEC: CMG FT4	2	U-500 1000†	U-152.4 304.8	22.5 46.0	10.2 20.9	.016	.39	.027	.69	.264	6.71	20.5	67.3
Suitable for Direct Burial applications. White and Black jackets are Sunlight-resistant.															
For Audio Use Only	**1310A** new	NEC: CMR, CL3R CEC: CMG FT4	4	U-500 1000†	U-152.4 304.8	41.5 84.0	18.8 38.1	.016	.39	.033	.94	.319	8.10	20.5	67.3
Suitable for Direct Burial applications. White and Black jackets are Sunlight-resistant.															
Low Cap • 12 AWG Stranded (168x34) Oxygen-free High-Conductivity Bare Copper Conductors • Conductors Cabled • Unshielded															
Polyolefin Insulation • PVC Jacket (Available in Black, White or Gray)															
For Audio Use Only	**1311A** new	NEC: CMR, CL3R CEC: CMG FT4	2	U-500 500 1000†	U-152.4 152.4 304.8	36.5 36.5 74.0	16.6 16.6 33.6	.018	.46	.036	.91	.352	8.94	22.3	73.2
Suitable for Direct Burial applications. White and Black jackets are Sunlight-resistant.															
For Audio Use Only	**1312A** new	NEC: CMR, CL3R CEC: CMG FT4	4	500 1000†	152.4 304.8	66.5 132.0	30.2 59.9	.018	.46	.043	1.09	.423	10.74	22.3	73.2
Suitable for Direct Burial applications. White and Black jackets are Sunlight-resistant.															
Low Cap • 10 AWG Stranded (259x34) Oxygen-free High-Conductivity Bare Copper Conductors • Conductors Cabled															
Polyolefin Insulation • PVC Jacket (Available in Black, White or Gray)															
For Audio Use Only	**1313A** new	NEC: CMR, CL3R CEC: CMG FT4	2	500 1000†	152.4 304.8	55.0 109.0	25.0 49.5	.019	.48	.044	1.12	.428	10.87	23.2	76.1
Suitable for Direct Burial applications. White and Black jackets are Sunlight-resistant.															

OFHC = Oxygen-Free High-Conductivity

*Capacitance between conductors.

†1000 ft. put-ups not available in Blue or Green.

Color Code Chart

Cond.	Color
1	Black
2	Red
3	White
4	Green

Detailed Specifications & Technical Data

BELDEN
SENDING ALL THE RIGHT SIGNALS

7919A Paired - Category 5e DataTuff® Twisted Pair Cable

For more information please call

1-800-Belden1

See Put-ups and Colors

Related Documents : Termination Instructions for Shielded UTP.pdf

Description:

24 AWG solid bare copper conductors, twisted pairs, polyolefin insulation, overall Beldfoil shield (100% coverage), 24 AWG stranded TC drain wire, industrial grade sunlight- and oil-resistant PVC jacket, rip cord. Sequential marking at two foot intervals

SUITABLE APPLICATIONS:

Suitable Applications	Industrial Ethernet Cable, Harsh Environments, 100MHz Category 5e, Gigabit Ethernet, 100BaseTX, 100BaseVG ANYLAN, 155ATM, 622ATM, NTSC/PAL Component or Composite Video, AES/EBU Digital Audio, RS-422, CMX - Outdoor, RJ-45 Compatible, Noisy Environments

PHYSICAL CHARACTERISTICS:

CONDUCTOR:

Number of Pairs	4
Total Number of Conductors	8
AWG	24
Stranding	Solid
Conductor Material	BC - Bare Copper

INSULATION:

Insulation Material	PO - Polyolefin
Nom. Insulation Wall Thickness	.010 in.

Pair Color Code Chart :

Number	Color	Number	Color
1	White/Blue Stripe & Blue	3	White/Green Stripe & Green
2	White/Orange Stripe & Orange	4	White/Brown Stripe & Brown

OUTER SHIELD:

Outer Shield Material Trade Name	Beldfoil®
Outer Shield Type	Tape
Outer Shield Material	Aluminum Foil-Polyester Tape
Outer Shield %Coverage	100 %

OUTER SHIELD DRAIN WIRE :

Outer Shield Drain Wire AWG	24

7919A Paired - Category 5e DataTuff® Twisted Pair Cable

Outer Shield Drain Wire Stranding	7x32
Outer Shield Drain Wire Conductor Material	TC - Tinned Copper

OUTER JACKET:

Outer Jacket Material	Industrial Grade PVC - Polyvinyl Chloride
Outer Jacket Ripcord	No

OVERALL NOMINAL DIAMETER:

Overall Nominal Diameter	.265 in.

MECHANICAL CHARACTERISTICS:

Operating Temperature Range	-40°C To +75°C
Installation Temperature Range	-25°C To +75°C
Bulk Cable Weight	30 lbs/1000 ft.
Max. Recommended Pulling Tension	25 lbs.
Min. Bend Radius (Install)	1 in.

APPLICABLE SPECIFICATIONS AND AGENCY COMPLIANCE:

APPLICABLE STANDARDS:

NEC/(UL) Specification	CMR, CMX-Outdoor, UL444
CEC/C(UL) Specification	CMR
IEC Specification	11801 Category 5
EU RoHS Compliant (Y/N)	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	01/01/2004
TIA/EIA Specification	568-B.2 Category 5e
Other Specification	NEMA WC-63.1 Category 5e, UL verified to Category 5e

FLAME TEST:

UL Flame Test	UL1666 Riser
CSA Flame Test	FT4

SUITABILITY:

Suitability - Outdoor	Yes
Sunlight Resistance	Yes
Oil Resistance	Yes

PLENUM/NON-PLENUM:

Plenum (Y/N)	N

ELECTRICAL CHARACTERISTICS:

Nom. Mutual Capacitance @ 1 KHz	15 pF/ft
Maximum Capacitance Unbalance (pF/100 m)	330 pF/100 m
Nominal Velocity of Propagation	70 %
Maximum Delay (ns/100 m)	538 @ 100MHz ns/100 m

7919A Paired - Category 5e DataTuff® Twisted Pair Cable

Maximum Delay Skew (ns/100m)	45 ns/100 m
Maximum Conductor DC Resistance @ 20 Deg. C	9.38 Ohms/100 m
Maximum DCR Unbalance @ 20 Deg. C	3 %
Max. Operating Voltage - UL	300 V RMS

ELECTRICAL CHARACTERISTICS - PREMISE:

Premise Cable Electricals Table 1 :

Frequency (MHz)	Max. Attenuation (dB/100 m)	Min. NEXT (dB)	Min. PSNEXT (dB)	Min. ACR (dB)	Min. PSACR (dB)	Min. Return Loss (dB)	Min. Structural Return Loss (dB)
1	2.0	65.3	62.3	63.0	60.0	20.0	23
4	4.1	56.3	53.3	51.0	49.0	23.0	23.0
8	5.8	51.8	48.8	46.0	43.0	24.5	24.5
10	6.5	50.3	47.3	43.0	41.0	25.0	25.0
16	8.2	47.3	44.3	39.0	36.0	25.0	25.0
20	9.3	45.8	42.8	36.5	33.5	25.0	25.0
25	10.4	44.3	41.3	33.9	30.9	24.3	24.3
31.25	11.7	42.9	39.9	31.0	28.0	23.6	23.6
62.5	17.0	38.4	35.4	22.0	19.0	21.5	21.5
100	22.0	35.3	32.3	14.0	11.0	20.1	20.1

Premise Cable Electricals Table 2 :

Frequency (MHz)	Input (Unfitted) Impedance (Ohms)	Fitted Impedance (Ohms)	Min. ELFEXT (dB)	Min. PSELFEXT (dB)
1	100 ± 15	100 ± 15	63.8	60.8
4	100 ± 15	100 ± 15	51.7	48.7
8	100 ± 15	100 ± 15	45.7	42.7
10	100 ± 15	100 ± 15	43.8	40.8
16	100 ± 15	100 ± 15	39.7	36.7
20	100 ± 15	100 ± 15	37.7	34.7
25	100 ± 15	100 ± 15	35.8	32.8
31.25	100 ± 15	100 ± 15	33.9	30.9
62.5	100 ± 15	100 ± 15	27.8	24.8
100	100 ± 15	100 ± 15	23.8	20.8

NOTES:

Notes	Operating temperatures are subject to length de-rating. Cable passes -40°C Cold Bend per UL 1581.

PUT-UPS AND COLORS:

Item	Description	Put-Up (ft.)	Ship Weight (lbs.)	Jacket Color	Notes
7919A 0061000	4 PR #24 PP FS PVC	1000	35	BLUE, LIGHT	C
7919A 0101000	4 PR #24 PP FS PVC	1000	35	BLACK	C
7919A 0102000	4 PR #24 PP FS PVC	2000	68	BLACK	C

7919A Paired - Category 5e DataTuff® Twisted Pair Cable

C = CRATE REEL PUT-UP.

Revision Number: 6 Revision Date: 07-12-2006

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PANARAY® 402® Series II Loudspeaker

General Description

The Bose® 402 Series II loudspeaker is a 120-watt speaker designed for permanent installations and portable use indoors and outdoors. As a new addition to the Bose line of *Installed AnyWhere™* loudspeakers, it meets our strict standards for outdoor use.

The 402 Series II loudspeaker offers the following features:

- Voice and music reproduction over a broad dispersion area
- A rugged, portable enclosure with metal grille
- Slim, aesthetic styling in black or white
- Weather-resistant design to ensure reliable performance indoors and outdoors
- A full complement of brackets and stands available for a variety of product uses

Each 402 Series II loudspeaker uses four (4) 11.34 cm full-range drivers mounted in symmetric vertical pairs on a faceted Articulated Array® loudspeaker baffle assembly. The drivers feature low-impedance, edge-wound Ferrite V ceramic magnets, and molded polyester frames. Their advanced cone and motor system gives them high linear excursion capability and power output. Environmental durability is built into soft parts – cone, surround and spider – and coated onto the hard parts of the driver. These materials optimize the weather resistance of the loudspeaker when it is installed outdoors.

402 Series II loudspeakers are used in combination with the PANARAY® system digital controller or the Bose 1600 or 1800 amplifiers. The amplifiers work in combination with the 402 plug-in EQ card to provide active equalization for the system.

The PANARAY system digital controller assures smooth, accurate spectral

Technical Information

Frequency Range
90Hz to 16kHz ±3dB

Sensitivity[1]
91dB-SPL @ 1W, 1m (pink noise)

Maximum Acoustic Output[2]
111dB-SPL @ 1m (pink noise)
115dB-SPL @ 1m (IEC[3] noise)

Dispersion (–6dB point, average, 1-4kHz)
Horizontal 120˚
Vertical 60˚

Long-Term Power Handling[4]
120W continuous

Impedance
8Ω nominal

Mechanical Specifications
Dimensions: 23.25"H x 8.1"W x 7.25"D (59 cm H x 21 cm W x 18 cm D)
Weight: 15 lb (7 kg)

Available colors: black or white

Connectors: Two (2) parallel-wired NL4 connectors

Enclosure construction: Mica-reinforced polyethylene copolymer structural foam

Installation

Installation and use instructions are included with the loudspeaker.

The 402 Series II loudspeakers are designed to be wall or ceiling mounted, or mounted on stands for portable use. The following versatile accessories are available from Bose:

- WBP4 402 Wall Mount Bracket (0-45˚ pitch, ± 60˚ yaw in vertical orientation; ±28˚ in horizontal orientation), black or white
- SB4 402 Speaker Single Fly Bracket (0-45˚ pitch), black or white
- SS10 Speaker Stand with Mounting Adapter and Carry Bag, black
- TK-402 Speaker Transit Kit, black

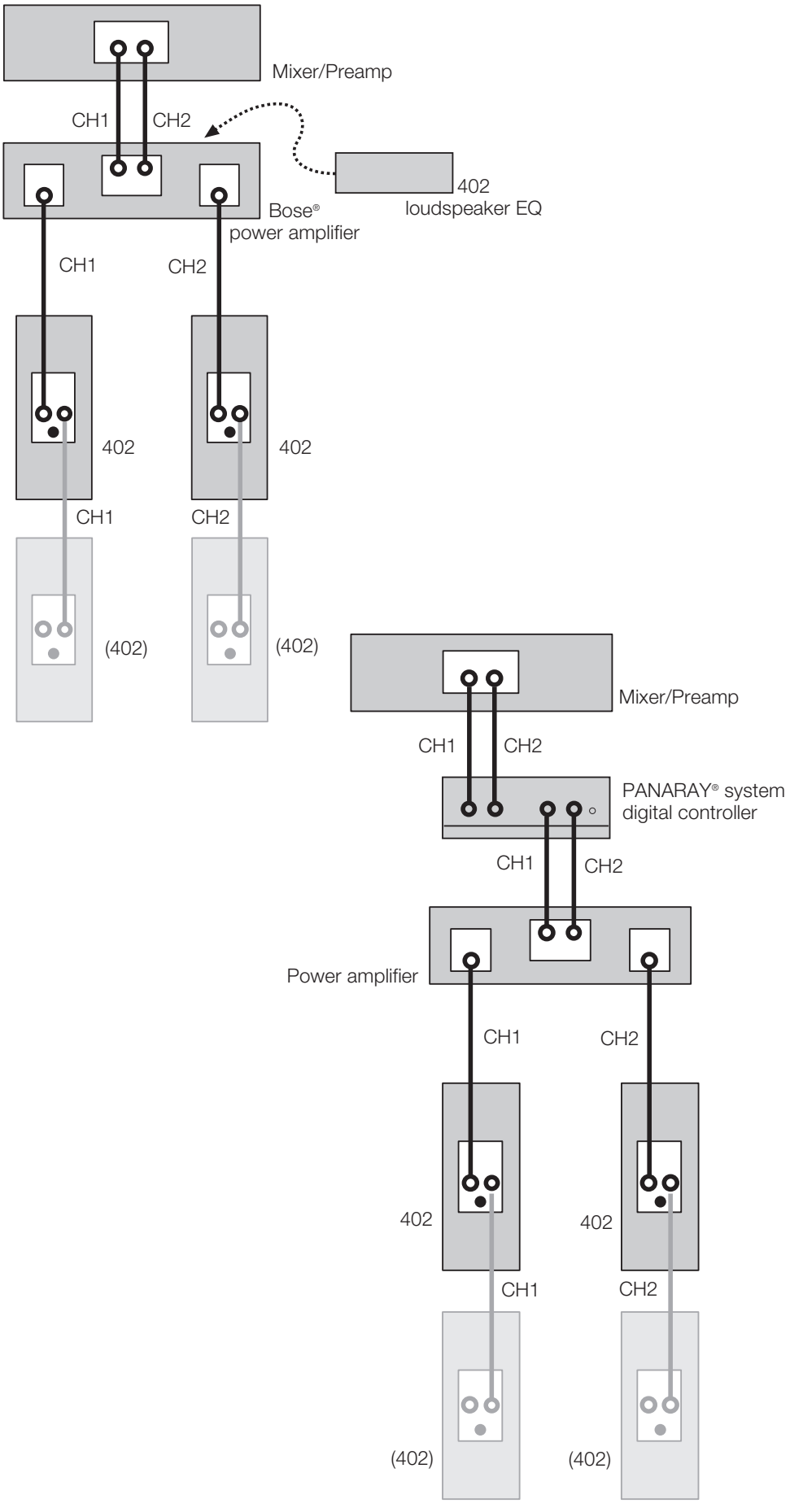
[1]Full bandwidth pink noise is applied to the 402-II speaker and amplified to a level at the loudspeaker terminals corresponding to 1 watt as referenced to the nominal impedance. The average sound pressure level (dB-SPL) is measured at 1 meter from the speaker in an anechoic environment.

[2]Full bandwidth pink noise is applied to the 402-II speaker and amplified to a level at the loudspeaker terminals corresponding to the long-term rated power handling of the speaker. The average sound pressure level (dB-SPL) is measured at 1 meter from the speaker in an anechoic environment.

[3]Full bandwidth pink noise, meeting International Electrotechnical Commission (IEC) Standard #268-5, with a spectrum corresponding to average program material.

[4]Full bandwidth noise, meeting the IEC Standard #268-5 is applied to the 402-II speaker and amplified to a level at the loudspeaker terminals corresponding to the power handling of the loudspeaker. The loudspeaker must show no visible damage or measurable loss of performance after 100 hours of continuous testing.

System Configurations



response across the operating range of the 402® Series II loudspeaker. Using a controller or EQ card also allows for crossover of the 402 Series II loudspeaker with a Bose® bass loudspeaker.

Loudspeaker Configuration

The 402 Series II loudspeaker can be used with the Bose 1600 and 1800 amplifiers. It is also compatible with industry standard amplifiers rated for 4-8Ω loads.

The 402 speaker is packaged one per carton.

Engineers' and Architects' Specifications

The loudspeaker shall be a multiple driver, full-range system with matched active equalization as follows:

The transducer complement shall consist of four (4) full-range environmental drivers of 11.4 cm diameter, mounted vertically in a faceted baffle. Each driver shall have a rated impedance of 1.6Ω and shall be wired in series, resulting in a composite speaker assembly nominal impedance of 8Ω.

The loudspeaker system sensitivity shall be 99dB-SPL in the 300Hz to 3kHz range and 91dB-SPL in the 90Hz to 16kHz range with both measurements referenced to a 1 watt (2.83V) pink noise input at 1 meter. The nominal horizontal beamwidth shall be 120 degrees, and the nominal vertical beamwidth shall be 60 degrees. The power handling capacity of the loudspeaker shall be 120 watts continuous pink noise, band-limited from 90Hz to 16kHz.

The loudspeaker shall be provided with a ducted vent system, tuned at 95Hz. The input connectors of the 402 Series II loudspeaker shall consist of two parallel Speakon® NL4 receptacles.

The enclosure of the 402 Series II loudspeaker shall be composed of mica-reinforced polyethylene copolymer structural foam. Its outer dimensions shall be 23.25"H x 8.1"W x 7.25"D (59 cm H x 21 cm W x 18 cm D); its weight shall be 15 lb (7 kg).

The loudspeaker shall be the Bose 402 Series II loudspeaker system.

The loudspeaker system shall be used with a PANARAY® system digital controller, to be connected before the input(s) of the system power amplifier(s), or with a 402® loudspeaker EQ card, to be installed in a Bose® 1600 or 1800 amplifier.

The electronic controller shall be the Bose PANARAY system digital controller

Safety and Regulatory Compliance

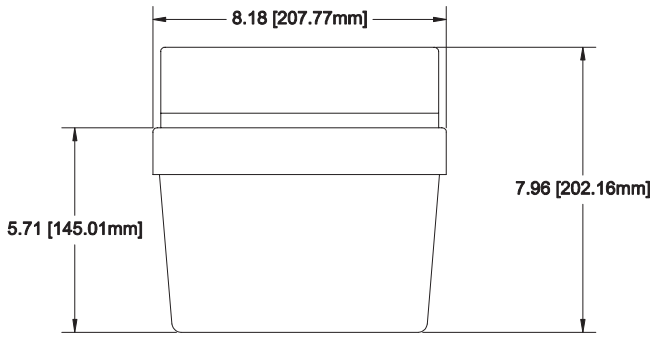
All versions of the Bose 402 Series II loudspeakers comply with ANSI/EIA 636, *Recommended Loudspeaker Safety Practices* and EMC Directive 89/336/EEC and Article 10 (1) of the Directive in compliance with EN50081-1, EN50082-1, as signified by the CE mark.

Warranty Information

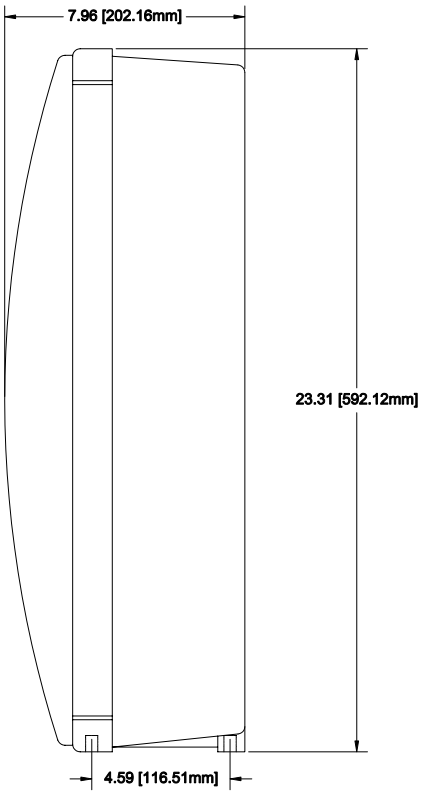
All versions of the Bose 402 Series II loudspeaker are covered by a 5-year, transferable limited warranty.

402® Series II Speaker Views

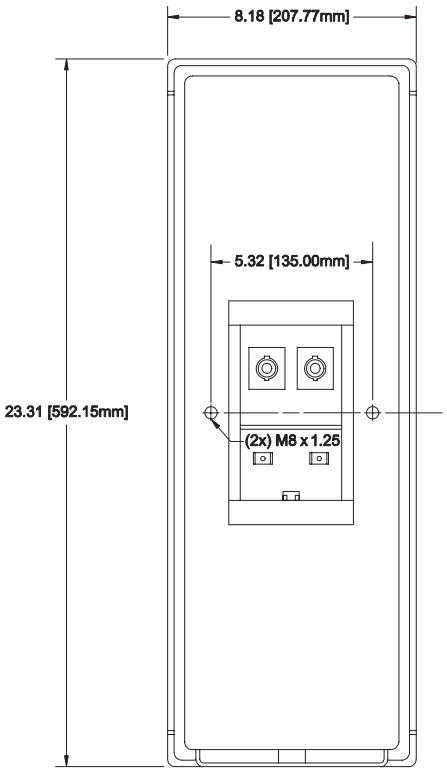
Top View



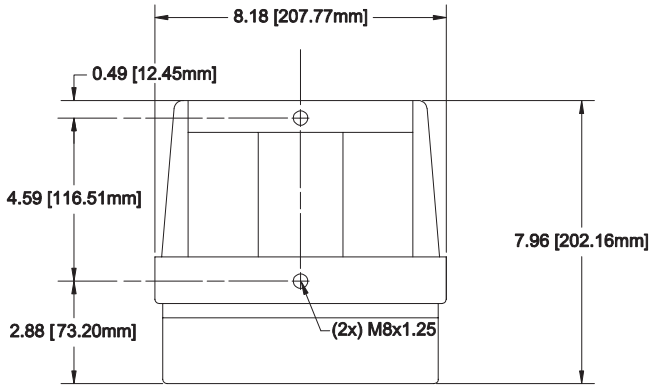
Side View



Rear View



Bottom View



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PN269262 AM Rev.00 PC031392 JN30026

Panaray® MA12EX
Modular Line Array Loudspeaker

TECHNICAL DATA SHEET

Key Features

- Designed to deliver full-range music and high speech intelligibility in both indoor and outdoor acoustically demanding spaces
- Full-range music performance from 75 Hz to 13 kHz (-3 dB) without the need for additional bass augmentation
- Articulated Array® loudspeaker technology delivers wide horizontal dispersion for broad 160° coverage*
- Available in black or white, paintable

Description

The Panaray® MA12EX modular line array loudspeaker is designed for indoor and outdoor applications where full-range music and speech intelligibility are required. The Panaray MA12EX loudspeaker is engineered to provide full-range music performance from 75 Hz to 13 kHz (-3 dB) without the need for additional bass augmentation.

The MA12EX loudspeaker can be mounted in single or multiple loudspeaker configurations. This loudspeaker is well-suited for indoor and outdoor applications such as houses of worship, multi-purpose spaces, recreation, restaurants, auditoriums, transportation hubs, gymnasiums, atriums and malls.

Descriptive Data

System Performance (Single Module)	
Frequency Response (-3 dB)[1]	75 Hz - 13 kHz
Frequency Range (-10 dB)[1]	58 Hz - 16 kHz
Calculated Maximum SPL @ 1m[2]	109 dB
Input Power Rating (continuous/peak)[3]	150W/600W[6]
Axial Sensitivity (SPL/1W @ 1m)[4]	87 dB
Nominal Horizontal Coverage (-6 dB)	160°
Nominal Vertical Coverage (-6 dB)[5]	20°
Nominal Impedance (transformer bypass)	8Ω
Minimum Impedance	7.1Ω
Crossover Frequency	N/A
Recommended High-Pass Filter	65 Hz
Transducers	
Driver Complement	Twelve 2.25" (57mm) high-excursion, weather-resistant drivers
Physical	
Enclosure Material	Powder-coated aluminum
Grille	Powder-coated aluminum
Environmental Specification	Indoor and outdoor use per IEC 529 IPX5 specifications
Connectors	Two parallel-wired Neutrik Speakon® NL4 connectors Two two-conductor barrier strips
Suspension Attachment	6 x M6 threaded inserts
Dimensions (H x W x D)	38.8" x 4.1" x 5.5" (986mm x 104mm x 140mm)
Net Weight	20.8lbs
Shipping Weight	22.9lbs

Notes:

*Articulated Array loudspeaker technology produces wide, uniform sound coverage by angling every other driver within the enclosure to create 160 degrees of horizontal coverage and consistent tonal balance.

[1–4]See "How our Loudspeakers are Measured" on page 6. [5]Vertical coverage varies by number of modules vertically arrayed and distance from line-source boundary. Use Modeler® software for the best prediction.

[6]150W for full-range music and speech applications. Speech-only applications (155 Hz to 12 kHz), power handling (continuous) at 300W/1200W.

Panaray® MA12EX
Modular Line Array Loudspeaker

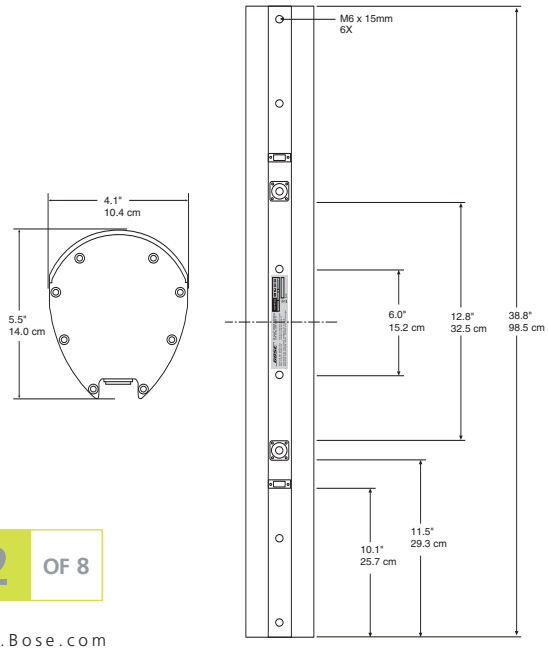
TECHNICAL DATA SHEET

Recommended Equalization

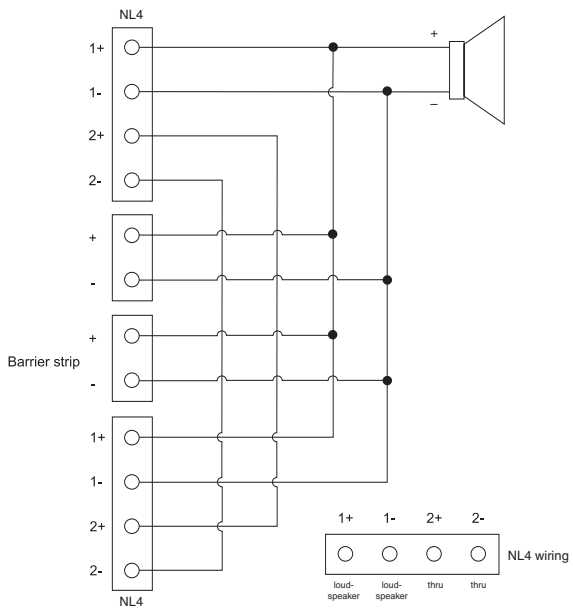
MA12EX Processor Settings					
Application		MA12EX Free Air	MA12EX Wall	MA12EX Stacked Free	MA12EX Stacked Wall
HPF	Freq. (Hz)	63.1	63.1	70	63.1
	Slope (dB/octave)	24	24	24	24
	Type	Butterworth	Butterworth	Butterworth	Butterworth
PEQ1	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	100	89.13	100	199.5
	Bandwidth	1.6	1.25	1.6	1.25
	Level (dB)	6	3	6	-4
PEQ2	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	251.2	251.2	251.2	631
	Bandwidth	1.25	1	1	0.8
	Level (dB)	-6	-4	-4.5	-3
PEQ3	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	891.3	794.3	707.9	794.3
	Bandwidth	2	0.63	2	1.25
	Level (dB)	-4	-3	-5	-5.5
PEQ4	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	2k	2k	1.78k	2k
	Bandwidth	1	1	0.8	1
	Level (dB)	-4.5	-3.5	-3	-5
PEQ5	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	7.94k	7.94k	7.08k	7.08k
	Bandwidth	1.25	1	0.63	1
	Level (dB)	-10	-8	-8	-8
PEQ6	Type	PEQ	PEQ	PEQ	PEQ
	Freq. (Hz)	12.6k	12.6k	12.6k	12.6k
	Bandwidth	0.8	0.63	1.6	0.63
	Level (dB)	5.5	7	6	7

Note: The above settings were developed for ControlSpace® Systems. Other devices will vary.

Mechanical Diagrams

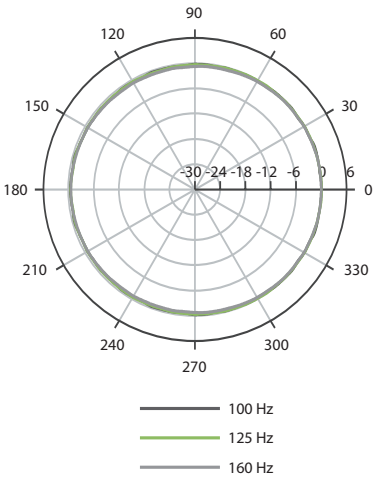


Wiring Diagram

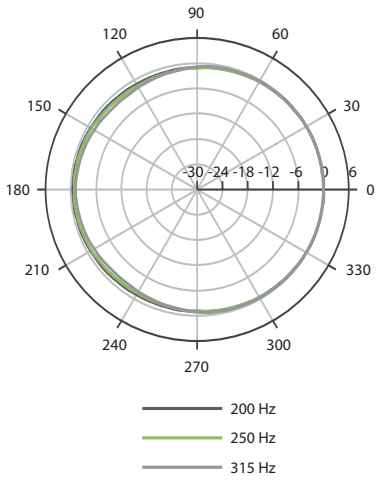


Polar Plots ⅓ Octave Horizontal

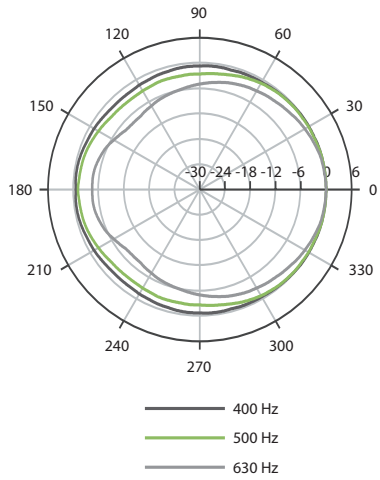
125 Hz Octave Band



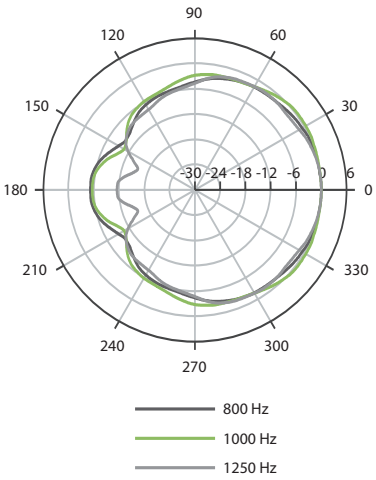
250 Hz Octave Band



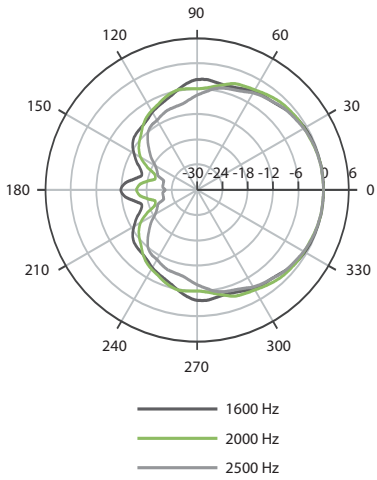
500 Hz Octave Band



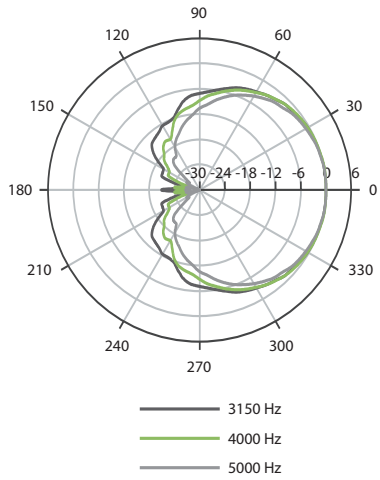
1000 Hz Octave Band



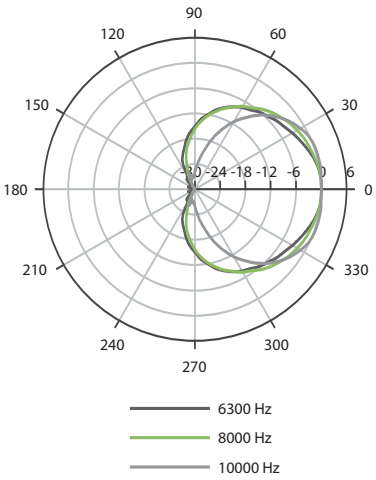
2000 Hz Octave Band



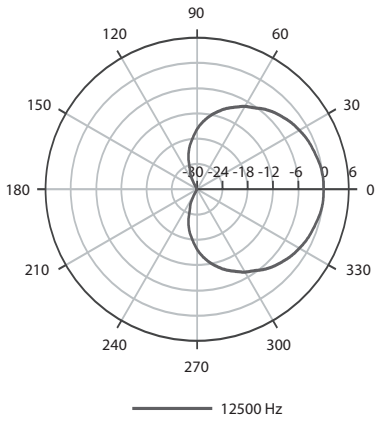
4000 Hz Octave Band



8000 Hz Octave Band



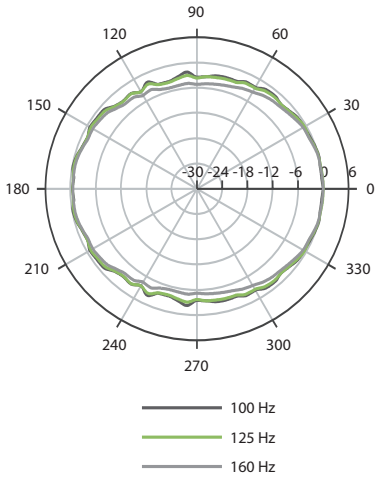
16000 Hz Octave Band



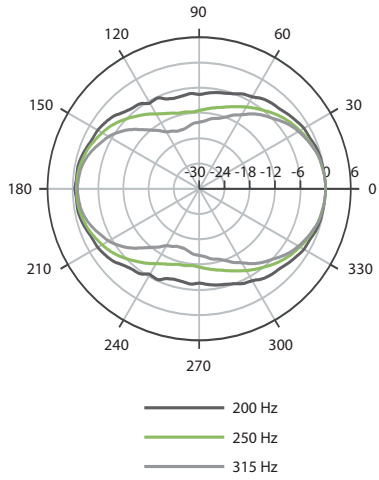
TECHNICAL DATA SHEET

Polar Plots ⅓ Octave Vertical

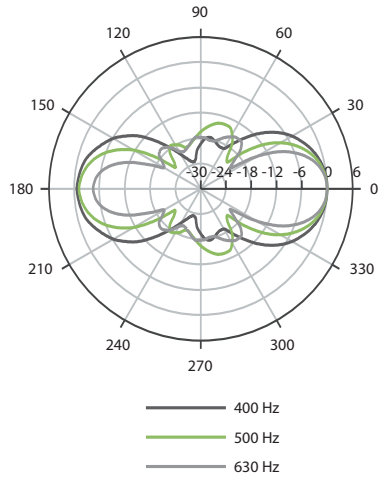
125 Hz Octave Band



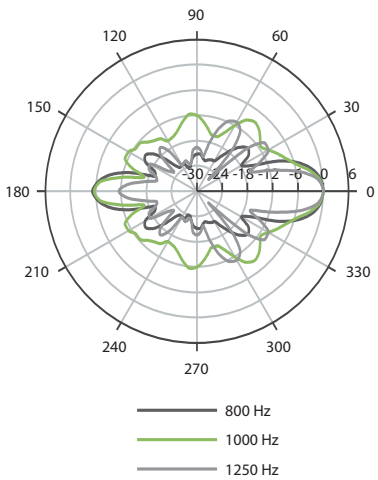
250 Hz Octave Band



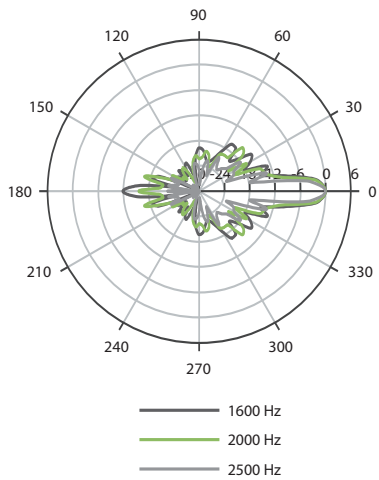
500 Hz Octave Band



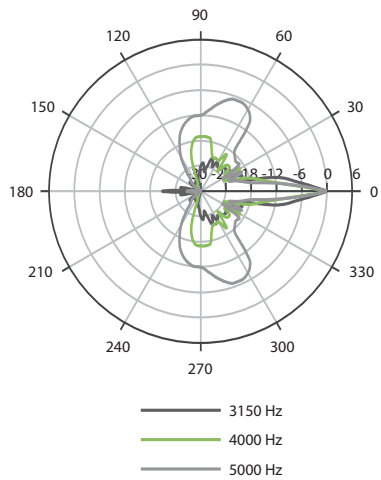
1000 Hz Octave Band



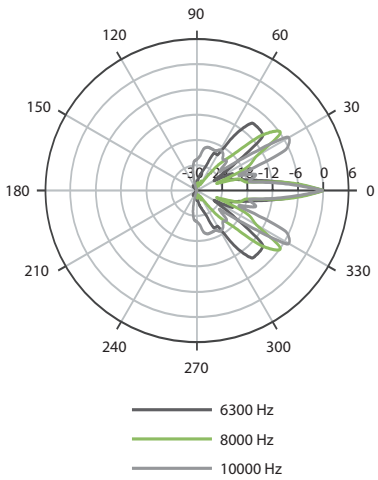
2000 Hz Octave Band



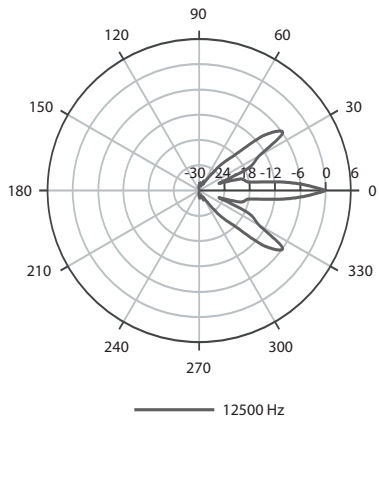
4000 Hz Octave Band



8000 Hz Octave Band

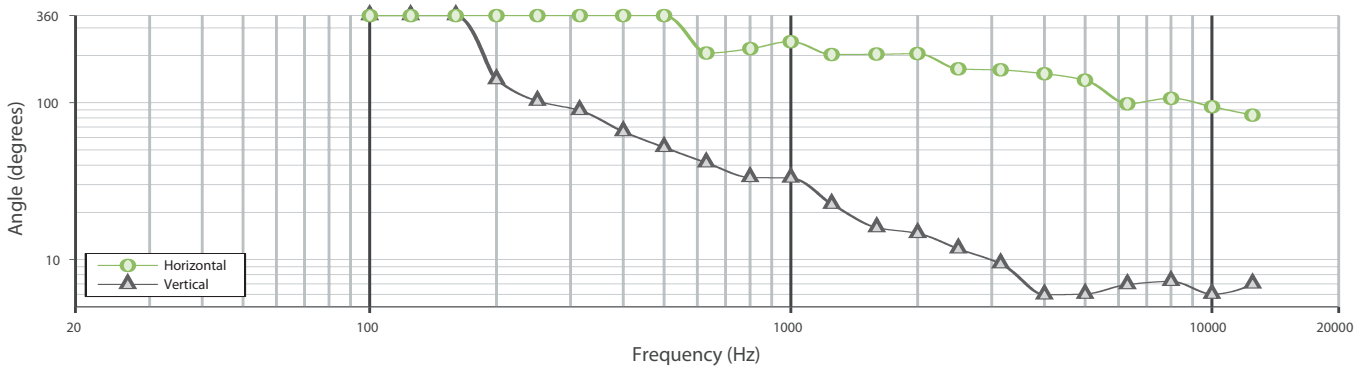


16000 Hz Octave Band

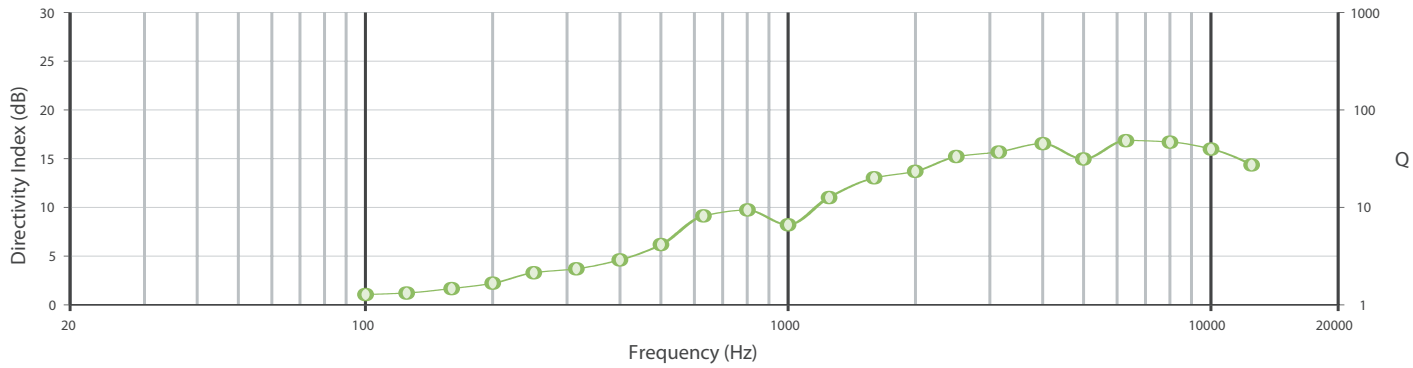


TECHNICAL DATA SHEET

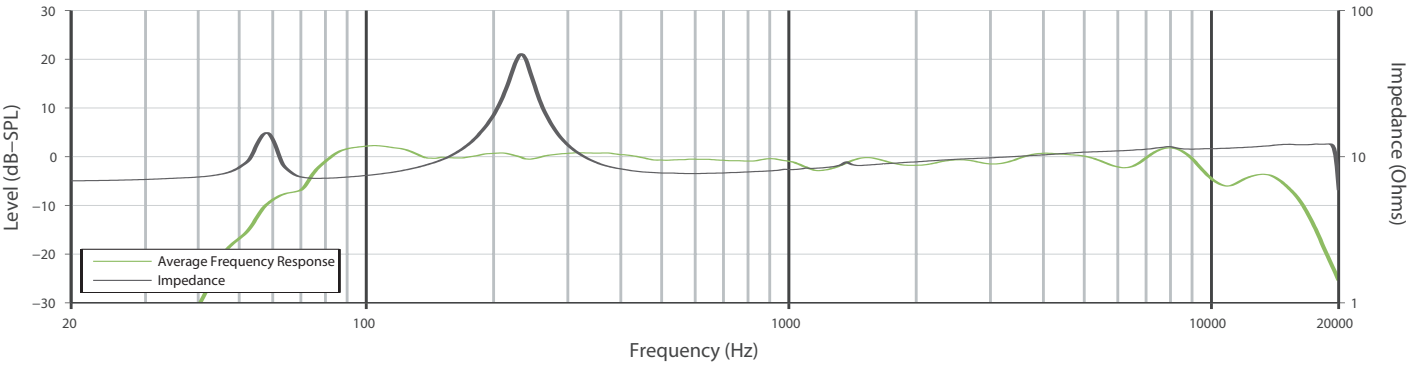
Beamwidth



Directivity Index and Q



Average Frequency Response and Impedance[1]



[1] See "How our Loudspeakers are Measured" on page 6.

Engineers' and Architects' Specifications

The loudspeaker shall be a multiple driver, full-range system with matched active equalization as follows:

The transducer complement shall consist of twelve 2.25" (57mm) high-excursion, weather-resistant drivers mounted in an Articulated Array® loudspeaker design. Each driver shall have a rated impedance of 5Ω and wired in series/parallel, resulting in a composite nominal impedance of 8Ω.

The nominal horizontal beamwidth of the loudspeaker shall be 160°, and the vertical coverage is a band of constant height. The power handling capacity of the loudspeaker shall be 150W continuous pink noise, band – limited from 75 Hz to 13 kHz (-3 dB).

The loudspeaker shall be provided with a ducted vent system, tuned at 75 Hz. The input connector of the loudspeaker module shall consist of two parallel-wired Speakon® NL4 receptacles and two two-conductor barrier strips.

The enclosure of the MA12EX speaker module shall be aluminum. Its outer dimensions shall be 38.8" H x 4.1" W x 5.5" D (986mm x 104mm x 140mm). Its weight shall be 20.8lbs.

The loudspeaker shall be the Bose® Panaray® MA12EX modular line array loudspeaker.

Safety and Regulatory Compliance

The MA12EX loudspeaker complies with ANSI/EIA-636 *Recommended Loudspeaker Safety Practices*.

Rigging

MA12EX loudspeakers can be mounted as a single element or stacked in multiples to achieve line array performance. Bose MA12EX loudspeaker mounting brackets are available and tested for use with single-, double- and triple-stack MA12EX loudspeaker installations. For installations of four or more MA12EX loudspeakers, obtain your mounting system from a reputable manufacturer. Select a system design that works for your loudspeaker of choice and its intended use. Always have a licensed professional engineer review the design and fabrication for structural integrity and safety in the intended application.

How our Loudspeakers are Measured

1. Frequency Response and Range

Data is the average response in the typical coverage area with the recommended equalization applied.

2. Calculated Max SPL

Calculated based on input sensitivity with recommended equalization applied and maximum input power rating exclusive of power compression.

3. Input Power Rating

Pink noise with a 6 dB crest factor is bandpass limited to the operating range of the loudspeaker and applied for 100 hours.

4. Axial Sensitivity

Full-bandwidth pink noise with recommended equalization amplified to a level of 1 watt and applied to the loudspeaker in an anechoic environment.

More Information

Technical literature and other materials are available at pro.Bose.com.

Product Codes

Loudspeaker

MA12EX Loudspeaker Black . . . . . PC 317302-0100
MA12EX Loudspeaker White . . . . . PC 317302-0200

Accessories

CB-MA12EX Coupling Bracket Black . . . . . PC 317088-0100
CB-MA12EX Coupling Bracket White . . . . . PC 317088-0200

CVT-MA12EX Transformer 70V/100V Black . . . . . PC 315338-0100
CVT-MA12EX Transformer 70V/100V White . . . . . PC 315338-0200

WB-MA12/MA12EX Pitch Only Bracket Black . . . . . PC 318418-0100
WB-MA12/MA12EX Pitch Only Bracket White . . . . . PC 318418-0200

WMB-MA12/MA12EX Bi-Pivot Bracket Black . . . . . PC 318338-0100
WMB-MA12/MA12EX Bi-Pivot Bracket White . . . . . PC 318338-0200

WMB2-MA12/MA12EX Pitch Lock Upper Bracket Black . . . . . PC 318337-0100
WMB2-MA12/MA12EX Pitch Lock Upper Bracket White . . . . . PC 318337-0200

Replacement Parts

MA12EX Grille Black . . . . . PC 317423-010S
MA12EX Grille White . . . . . PC 317423-020S

Bose Logo Black . . . . . PC 317418-010S
Bose Logo White . . . . . PC 317418-020S

2.25" (57mm) driver . . . . . PC 318828-000S

Endcap Black . . . . . PC 317414-010S
Endcap White . . . . . PC 317414-020S

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Better sound through research®

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PANARAY® System
Digital Controller II

TECHNICAL DATA SHEET

Product Overview

The Bose® Panaray® system digital controller is a universal EQ controller engineered to provide Bose professional loudspeakers with active equalization. The EQs for Bose professional loudspeakers can be accessed by selecting the appropriate preset and configuration. No programming is required.

Product Information

The Panaray system digital controller utilizes digital signal processing (DSP) architecture to provide active equalization and signal processing for Bose professional loudspeakers. The controller features a complete set of Bose active equalization presets. Individual input sensitivity and output range, as well as master output level, are adjustable via the user interface buttons and easy-to-read 2 x 16 backlit LCD display on the front panel.

The Panaray system digital controller can be configured for mono or stereo operation. A bass mono sum feature is available for situations where stereo mid/high loudspeakers are paired with a single bass loudspeaker. The controller offers configurations designed for bass array applications. It also offers global limiting to protect against unpredictable spikes in program material.

The Panaray system digital controller features two analog, balanced, differential XLR inputs and four analog, balanced, differential XLR outputs. The unit also has a RS232 connector for future software updates.

Key Features

- Two balanced differential XLR inputs and four balanced differential XLR outputs
- Preset active equalization settings for all Bose professional loudspeakers
- Bass mono sum option for using a single low-frequency loudspeaker with stereo mid/high loudspeakers
- Bass array presets for Panaray bass loudspeakers
- Special “lockout” feature prevents tampering to maintain initial system settings
- Global limiter protect function option
- Easy-to-read 2 x 16 backlit LCD display
- Signal input and clipping LED indicators
- RS232 connector for software updates

Applications

The Panaray system digital controller is well-suited for portable and installed professional sound systems.

PANARAY® System
Digital Controller II

TECHNICAL DATA SHEET

Product Specifications

Inputs:
2 analog, balanced, differential, XLR

Input impedance:
Differential 2.21kΩ @ 1 kHz

Maximum input level:
+18 dBu

Sensitivity range @ full scale:
Selectable, 0/+6/+12/+18 dBu

Outputs:
4 analog, balanced, differential, XLR

Output impedance:
Differential 200Ω

Maximum output level (balanced):
+18 dBu

Output ranges (balanced):
Selectable, 0/+6/+12/+18 dBu

Conversion:
44.1 kHz

Throughput delay:
1.52ms

Dynamic range:
103 dB (typical)

THD:
0.003% (typical)

Frequency response:
20 Hz to 20 kHz (+0/-1 dB)

Crosstalk:
100 dB (typical)

Communication port:
RS232 (for software updates only)

Audio indicators:
Signal (Present) – Green LED
Signal (Clip) – Red LED

Mains voltage:
100 to 240 VAC, 50 to 60 Hz (auto-select)

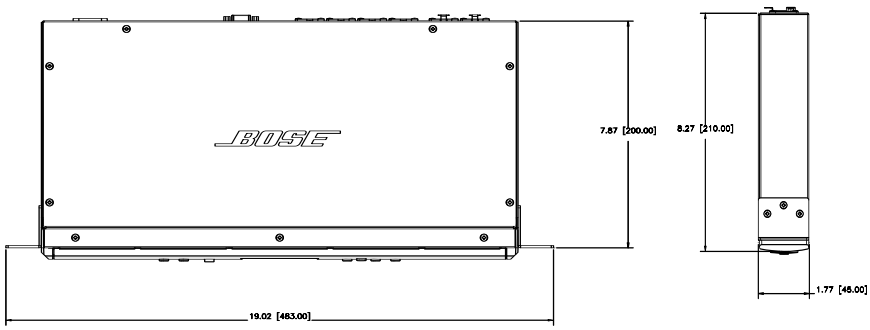
Power consumption:
15W

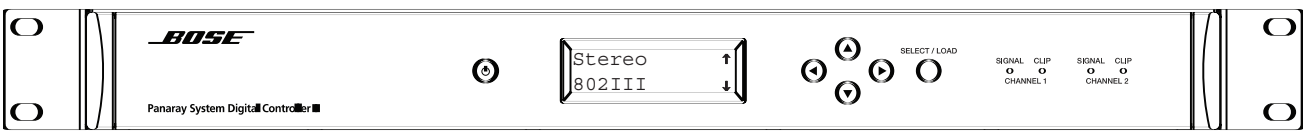
Environmental:
Operating temperature: 32° – 104°F (0° – 40°C)
Storage temperature: -4° – 122°F (-20° – 50°C)
Humidity: 95% relative humidity

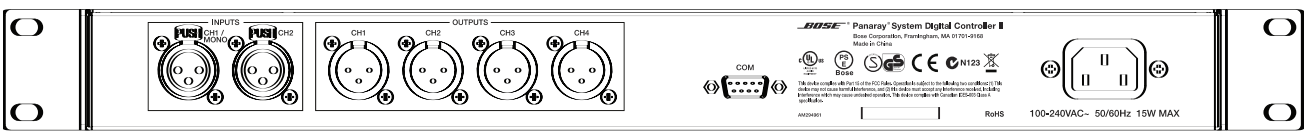
Dimensions:
19"W x 8.27"D x 1.77"H
(483mm x 210mm x 45mm)

Weight:
Product: 5.9lb (2.7kg)
Shipping: 7.8lb (3.5kg)

Mechanical diagram:







TECHNICAL DATA SHEET

Configuration diagrams:

Stereo mid/high with mono bass

PANARAY® System Digital Controller Display

Stereo ↑
402II+MB ↓

Preset

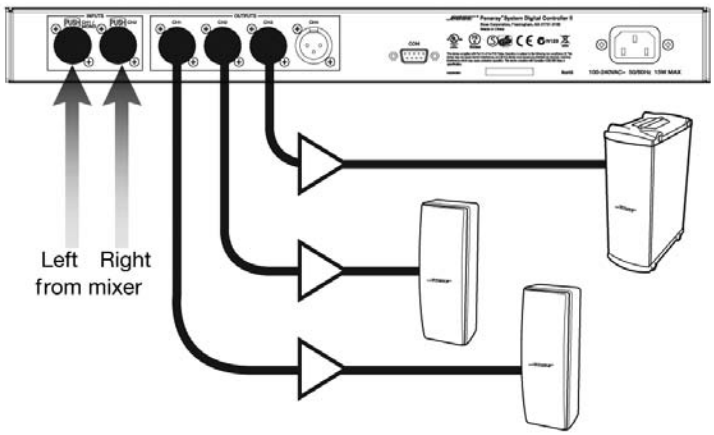
402® II Speaker Stereo with MB4 Speaker Mono

Controller Inputs

CH 1/Mono	Left from mixer
CH 2	Right from mixer

Controller Default Output Routing

	Ch 1	Ch 2	Ch 3	Ch 4
Routing	402-II Left (High freq)	402-II Right (High freq)	MB4 Mono (Low freq)	MB4 Mono (Low freq)



Mono mid/high with mono bass

PANARAY® System Digital Controller Display

Mono ↑
502A+502B ↓

Preset

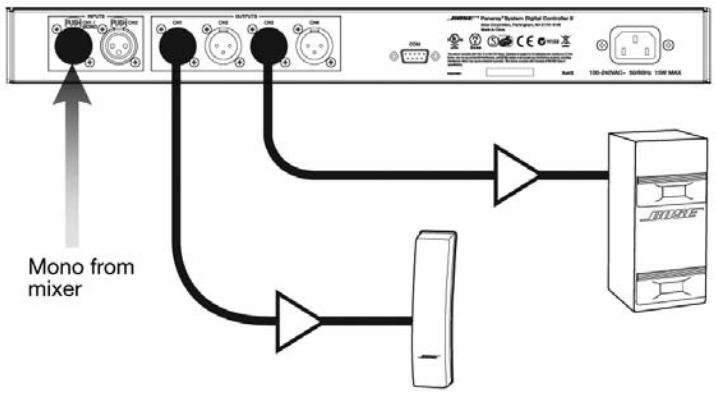
502® A Speaker Mono with 502 Speaker Mono

Controller Inputs

CH 1/Mono	Mono from mixer
CH 2	No input

Controller Default Output Routing

	Ch 1	Ch 2	Ch 3	Ch 4
Routing	502A Mono (High freq)	502A Mono (High freq)	502B Mono (Low freq)	502B Mono (Low freq)



2X endfire bass array

PANARAY® System Digital Controller Display

Bass Array ↑
MB4 2XEF180Hz ↓

Preset

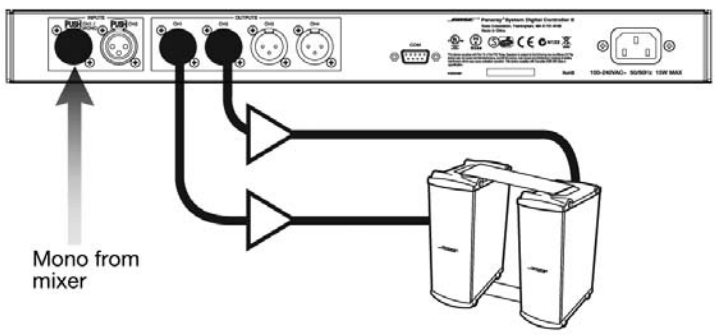
MB4 2X Endfire Bass Array

Controller Inputs

CH 1/Mono	Mono from mixer
CH 2	No input

Controller Default Output Routing

	Ch 1	Ch 2	Ch 3	Ch 4
Routing	MB4 (1) Mono	MB4 (2) Mono	N/A	N/A
Delay	On	On	Off	Off



TECHNICAL DATA SHEET

Engineers' and Architects' Specifications

The controller shall use a digital signal processing architecture running at a 44.1 kHz sample rate. The frequency response shall be from 20 Hz to 20 kHz (+0/-1 dB). The dynamic range shall be 103 dB (typical) 20 Hz to 20 kHz.

The controller shall include a single analog, balanced, differential XLR input connector for each of the two input channels. It shall have a single analog, balanced, differential XLR output for each of its four outputs. The maximum input level shall be +18 dBu. The maximum output level shall be +18 dBu. The input impedance shall be 2.21k ohms for balanced operation. The output impedance shall be 200 ohms.

The throughput delay time through the controller shall be 1.52ms.

Crosstalk shall be <-100 dB (typical).
The THD shall be <0.003% (typical).

A 9-pin RS232 connector COM port shall be used for software updates.

The power supply shall be auto switching from 100 to 240 VAC, 50 to 60 Hz. Power consumption shall be < 15W.

The controller shall be the Bose® Panaray® system digital controller II.

Safety and Regulatory Compliance

The Panaray system digital controller II complies with CE requirements, is cUL Listed according to UL60065 (7th edition) and CAN/CSA C22.2 No. 60065-03, CB approved according to IEC60065 (7th edition) including group and National differences, GS approved according to EN600065 (7th edition) and is PSE compliant. It also complies with FCC Part 15B Class A (2003), EN55103-1 (1997), EN55103-2 (1996), and CISPR13 (2003) requirements.

Limited Warranty

The Panaray system digital controller II is covered by a one-year transferable limited warranty.

Product Codes

Panaray system digital controller II

120V – US	PC 040500
230V – EU	PC 040502
100V – Japan	PC 040501
230V – UK	PC 040503
240V – AU	PC 040504

Better sound through research®

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CCM-003838 PC041975

LR-400 Portable Display FM Receiver

Don't miss a single sound. Listen®
www.listentech.com

Configuration

LR-400-072
LR-400-216
LR-400-863

The LR-400 Portable Display FM Receiver is a lower cost digital display receiver. It has exceptional audio quality as Listen's full-featured receivers and the same convenient recharging options. The LR-400 can receive up to 17 wide band channels along with 40 narrow bands (72 MHz), 19 wide band with 38 narrow band (216 MHz) and 17 wide band (863 MHz) channels. The LR-400 has a digital display to monitor channel selection, battery level, and signal strength. An LED on top signifies if the unit is on, flashes when batteries are low or locked on a channel if it blinks while pushing SEEK.

Highlights

- Superior Audio Quality – 80 dB (70 dB with 863 MHz) signal-to-noise ratio, setting the industry's sound quality standard.
- A choice between 57 channels (17 channels with 863 MHz), complete antenna and accessory options make Listen products ideal for a wide range of applications.
- 100 % Digital – Listen receivers are digitally-tuned so transmission won't drift; assurance that when you select a channel, it stays on the channel.
- Uses standard alkaline or NiMH batteries.
- Built in SmartCharge™ won't allow batteries to overcharge. Charging circuitry is conveniently built into Listen's receivers; never worry about unplugging a transformer at a certain time.
- Transformer charging plug or for the ultimate in convenience drop in charging contacts.
- Limited Lifetime Warranty with hassle-free support.

Requires

Requires a type of ear piece and (2) AA batteries.
LA-161 Single Ear Bud
LA-162 Stereo Ear Bud
LA-164 Ear Speaker
LA-165 Stereo Headphones
LA-166 Neck Loop
LA-170 Behind-the-Head Stereo Headphones
LA-361 High Capacity AA Alkaline Batteries (2)
LA-362 Rechargeable AA NiMH Batteries (2)

Used With

LT-800 Stationary FM Transmitter
LT-700 Portable FM Display Transmitter

Architectural Specification

LR-400-072/216
The FM receiver shall be capable of receiving on 57 wide and narrow band channels. The receiver shall have a SNR of 80 dB or greater. The receiver shall be capable of seeking channels. The device shall have a squelch. The device shall have an audio frequency response of 50 Hz to 15 KHz, ± 3 dB at 72 MHz and 50 - 10 kHz (±3dB) at 216 MHz. The device shall incorporate a stereo headset jack that allows the user to plug in either a mono or stereo headset and listen to audio normally. The device shall incorporate an LCD display that indicates channel, battery level, low battery, battery charging, RF signal strength and channel lock status. The unit shall operate off of 2 AA batteries. The receiver shall incorporate automatic battery charging circuitry for recharging of NiMH batteries. The device shall have a switchable option for the use of (2) alkaline or (2) NiMH batteries. The Listen LR-400-072 or LR-400-216 is specified.

LR-400-863
The FM receiver shall be capable of receiving on 17 wide band channels with a SNR of 70dB or greater. The device shall be able to be locked on a single channel. The receiver shall be capable of seeking channels. The device shall have an adjustable squelch. The device shall have an audio frequency response of 50 Hz to 15 KHz, ±3 dB. The device will incorporate a stereo headset jack that allows the user to plug in either a mono or stereo headset. The device shall incorporate an LCD display that indicates channel, battery level, low battery, battery charging, and RF signal strength. The receiver shall be able to function in both DX and Local mode. The unit shall operate off of 2 AA batteries. The receiver shall incorporate automatic battery charging circuitry for recharging of NiMH batteries. The device shall have a switchable option for the use of (2) alkaline or (2) NiMH batteries.The Listen LR-400-863 is specified.

Includes

LR-400 Portable Display FM Receiver
Owner's manual (72 MHz & 216 MHz)
Quick Reference Card (863 MHz)
Limited Lifetime Warranty Program Card (863 MHz)
FM System Design Guide and Manual Card (863 MHz)

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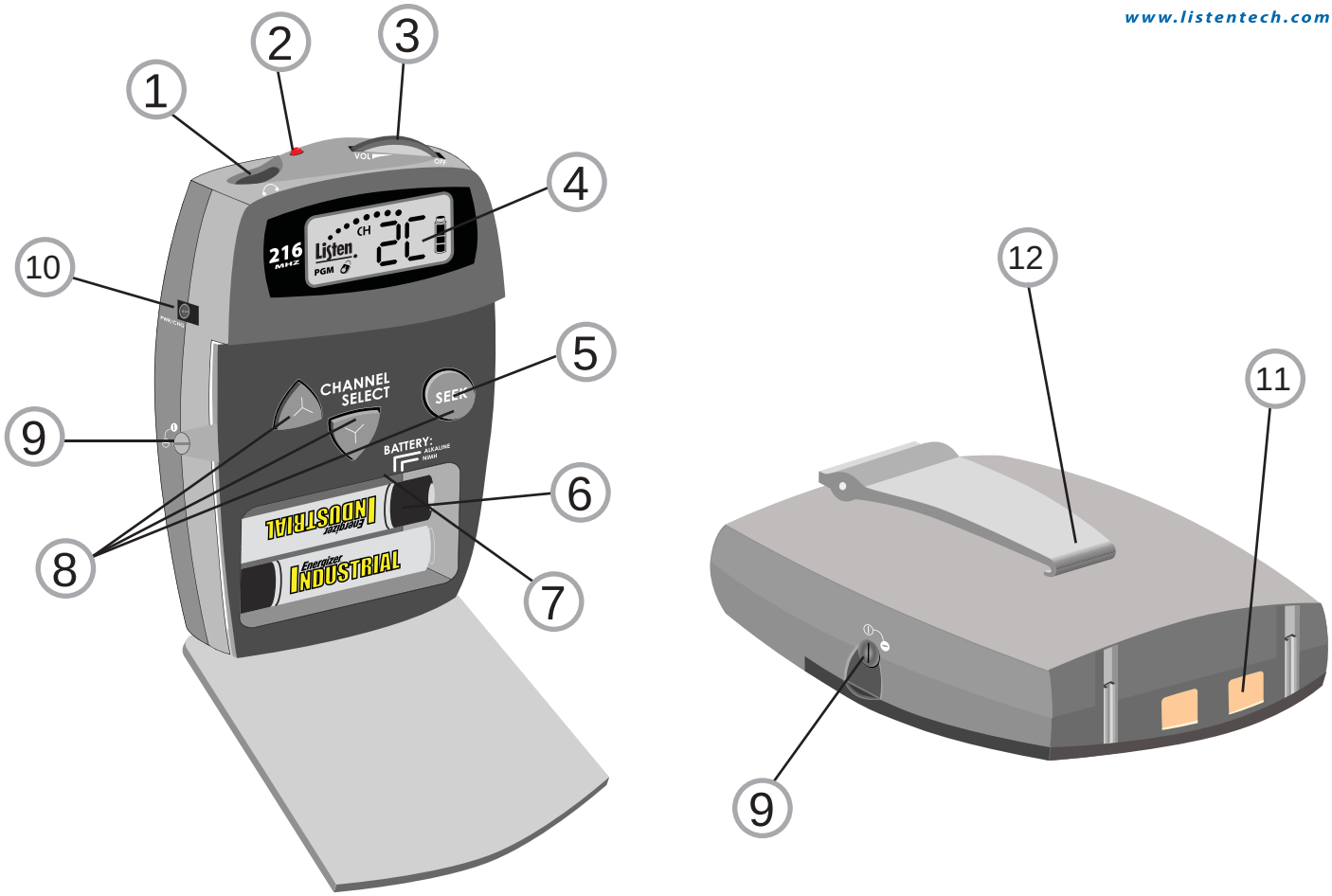

Product Features LR-400-072/216

1. An earphone jack (3.5 mm) accepts either mono or stereo headsets. Receiver antenna is built into the earphone cord, eliminating additional wires while maximizing receiver effectiveness.
2. Multifunction LED indicates power on, if batteries are low, if the unit is locked on a channel when SEEK is pressed and charging status.
3. Easy on/off volume control.
4. Look&Listen™ LCD Display shows channel selection, channel lock and battery level.
5. Seeks to find best available broadcast. Also used to adjustable squelch in 20 steps mutes audio on loss of RF signal.
6. Uses two AA batteries. Selectable to use either alkaline or Listen's advanced NiMH Rechargeable AA Batteries. SmartCharge™ incorporated into receiver makes sure each unit receives the most beneficial charge.
7. When enabled, SQ provides highest audio quality available in its product category. SQ can be disabled for compatibility with other assistive listening equipment.
8. Digitally tuned with UP, DOWN, and SEEK buttons behind manually lockable door. Electronically lock on channel by holding the SEEK button down 5 seconds to prevent tampering.
9. Manually lockable battery compartment door.
10. Charging plug port.
11. Contact points for Listen's drop in charging cases.
12. Exclusive belt clip "loop" prevents unit from slipping off belt or strap.

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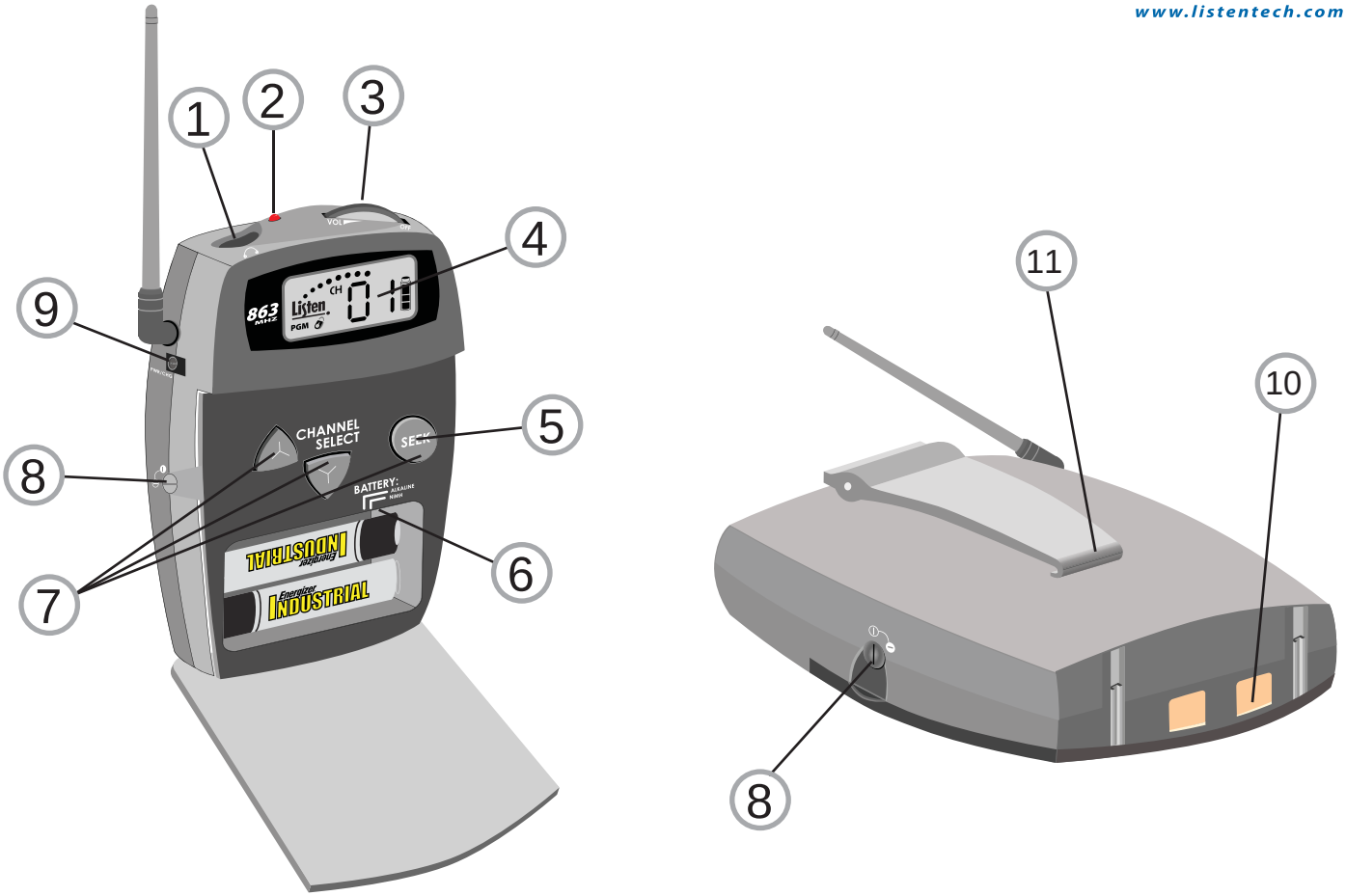

Product Features LR-400-863

1. An earphone jack (3.5 mm) accepts either mono or stereo headsets. Receiver antenna is built into the earphone cord, eliminating additional wires while maximizing receiver effectiveness.
2. Multifunction LED indicates power on, if batteries are low, if the unit is locked on a channel when SEEK is pressed and charging status.
3. Easy on/off volume control.
4. Look&Listen™ LCD Display shows channel selection, channel lock and battery level.
5. Seeks to find best available broadcast. Also used to adjust squelch in 20 steps which mutes audio on loss of RF signal.
6. Uses two AA batteries. Selectable to use either alkaline or Listen's advanced NiMH Rechargeable AA Batteries. SmartCharge™ incorporated into receiver makes sure each unit receives the most beneficial charge.
7. Digitally tuned with UP, DOWN, and SEEK buttons behind manually lockable door. Electronically lock on channel by holding the SEEK button down 5 seconds to prevent tampering.
8. Manually lockable battery compartment door. 10. Contact points for Listen's drop in charging cases.
9. Charging plug port.
10. Contact points for Listen's drop in charging cases.
11. Exclusive belt clip "loop" prevents unit from slipping off belt or strap.

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Accessories

LA-170

Headphones

LA-161 Single Ear Bud
LA-162 Stereo Ear Bud
LA-164 Ear Speaker
LA-165 Stereo Headphones
LA-166 Neck Loop
LA-170 Behind-the-Head Stereo Headphones

LA-202

Power/Charging Supplies

LA-202 Power/Charging Supply for FM Portable Products
LA-208-01 7.5 VDC Power/Charging Supply for FM Portable Products (North America)
LA-208-02 7.5 VDC Power/Charging Supply for FM Portable Products (Asia, UK)
LA-208-03 7.5 VDC Power/Charging Supply for FM Portable Products (Euro)

LA-266

Cables

LA-265 Consumer Camcorder Cable
LA-266 Professional Camcorder Cable
LA-275 Sacrificial Cable

LA-321

Charging/ Carrying Cases

LA-311-01 16-Unit Portable FM Product Charging/Carrying Case (North America)
LA-311-02 16-Unit Portable FM Product Charging/Carrying Case (Asia, UK)
LA-311-03 16-Unit Portable FM Product Charging/Carrying Case (Euro)
LA-317-01 4-Unit Portable FM Product Charging/Carrying Case (North America)
LA-317-02 4-Unit Portable FM Product Charging/Carrying Case (Asia, UK)
LA-317-03 4-Unit Portable FM Product Charging/Carrying Case (Euro)
LA-321-01 8-Unit Portable FM Product Charging/Carrying Case (North America)
LA-321-02 8-Unit Portable FM Product Charging/Carrying Case (Asia, UK)
LA-321-03 8-Unit Portable FM Product Charging/Carrying Case (Euro)

LA-324

Charging/ Carrying Cases with Removable Lid

LA-323-01 4-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (North America)
LA-323-02 4-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (Asia, UK)
LA-323-03 4-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (Euro)
LA-324-01 8-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (North America)
LA-324-02 8-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (Asia, UK)
LA-324-03 8-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (Euro)
LA-325-01 16-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (North America)
LA-325-02 16-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (Asia, UK)
LA-325-03 16-Unit Portable FM Product Charging/Carrying Case w/Removable Lid (Euro)

LA-362

Miscellaneous

LA-306 Soft Case (72 MHz & 216 MHz only)
LA-319 Protective Pouch for Portable FM Products
LA-320 Configurable Carrying Case
LA-330 Portable Unit Lanyard
LA-361 High Capacity AA Alkaline Batteries (2)
LA-362 Rechargeable AA NiMH Batteries (2)

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	Specifications	LR-400-072	LR-400-216
RF	RF Frequency Range	72.025 - 75.950 MHz	216.0125 - 216.9875 MHz
	Number of Channels	17 wide band, 40 narrow band	19 wide band, 38 narrow band
	Sensitivity	.6 uV typical, 1 uV maximum for 12dB sinad	
	Frequency Accuracy	+/-.005% stability 32˚ to 122˚F (0˚ - 50˚C)	
	Antenna	Uses earphone cable	
	Squelch	Programmable in 20 steps, automatic on loss of RF signal	
	Compliance	FCC Part 15, Industry Canada	FCC Part 90, Industry Canada
Audio	System Frequency Response	50Hz - 15kHz (+/-3db) 72 Mhz	50Hz - 10kHz (+/-3db) 216 MHz
	System Signal to Noise Ratio	SQ enabled: 80dB; SQ disabled 60dB	
	System Distortion	<2% total harmonic distortion (THD) at 80% deviation	
	Output	3.5 mm connectors, unbalanced, 0dBu nominal output level, 16 mW maximum, impedance 32 Ohms	
Controls	User Controls	Volume, channel UP/DOWN, SEEK	
	Set up Controls (battery compartment)	Alkaline/NiMH batteries, SQ enable/disable	
	Programming	Channel lock, squelch	
Indicators	LED	Red, illuminated when unit is on. Flashes when batteries are low, or to indicate charging. Flashes when locked and SEEK is pushed.	
	Display	Channel Designation, lock status, signal strength indication	
Power	Battery Type	Two AA batteries, alkaline or NiMH	
	Battery Life (Listen Batteries)	30 hours alkaline (LA-361), 15 hours NiMH rechargeable (LA-362)	
	Battery Charging (NiMH only)	Fully automatic, 13 hours	
	Power Supply	I/P 120VAC; O/P 7.5VDC 250 mA; Drop in contact points for use with charging cases. Power supply not included (LA-202)	
	Power Supply Connector	2.3 mm OD by 0.7 mm ID, barrel type connector, 7.5 VDC, center positive <250 mA. Drop in contact points for use with Listen charging cases.	
	Power Supply Compliance	RoHS, WEEE, UL, PSE, CE, CUL, TUV, CB compliant	
Physical	Dimensions H x W x D	5.0 x 3.0 x 1.0 in. (13 x 7.6 x 2.5 cm)	
	Color	Dark Grey with white silk screening	
	Unit Weight	3.9 oz. (111 g)	
	Unit Weight with batteries	5.8 oz. (164.4 g)	
	Shipping Weight	1.0 lb. (0.45 kg)	
	Door	Manually lockable. SEEK behind the door.	
Environmental	Temperature - Operation	14˚ to 104˚F - (10˚ to 40˚C)	
	Temperature - Storage	-4˚ to 122˚F - (20˚ to 50˚C)	
	Humidity	0 to 95% relative humidity, non-condensing	

** All system specifications are wireless end-to-end

** Specifications are subject to change without notification

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	Specifications	LR-400-863
RF	RF Frequency Range	863.050 - 864.950 MHz
	Number of Channels	17 Wideband
	Sensitivity	.6uV typical, 1 uV maximum for 12 dB sinad
	Frequency Accuracy	+/-.005% stability 32 to 122˚ (0 - 50˚C)
	Antenna	Integrated External Antenna
	Squelch	Programmable in 20 step, automatic on loss of RF signal
	Compliance	CE, ETSI, RoHS

** All system specifications are wireless end to end **

Audio	System Frequency Response	50Hz - 15kHz (+/-3db)
	System Signal to Noise Ratio	70db (A-Weighted)
	System Distortion	<2% total harmonic distortion (THD) at 80% deviation
	Output	3.5 mm connector, unbalanced, 0dBu nominal output level, 16 mW maximum, impedance 32 Ohms

Controls	User Controls	Channel up/down, SEEK, volume
	Set up Controls (battery compartment)	NiMH/Alkaline battery switch
	Programming	Channel Lock, DX/Local, squelch

Indicators	LED	Red, illuminated when unit is on. Flashes when batteries are low, or charging. Flashes when locked and SEEK is pushed.
	LCD Display	Channel Designation, lock status, signal strength indication, battery life

Power	Battery Type	Type: 2 AA batteries, Alkaline or NiMH
	Battery Life (Listen Batteries)	20 hours alkaline (LA-361), 10 hours NiMH rechargeable (LA-362)
	Battery Charging (NiMH only)	Fully automatic, 13 hours maximum
	Power Supply (LA-208)	7.5VDC, center positive 300mA. Drop in contact points for use with charging cases. Power supply not included (LA-208).
	Power Supply Connector	2.3 mm OD by .7 mm ID, barrel type
	Power Supply Compliance	RoHS, WEEE, UL, PSE, CE, CUL, TUV, CB compliant

Physical	Dimensions (H x W x D)	5.0 x 3.0 x 1.0 in (13.0 x 7.6 x 2.5 cm)
	Color	Dark Grey with white silk screening
	Unit Weight	3.9 oz. (111 g)
	Unit Weight with batteries	5.8 oz.. (164 g)
	Shipping Weight	1.0 lbs. (0.45 kg)
	Door	Manually lockable. Up, down, and power buttons through door. Other controls behind door (see controls)

Environmental	Temperature - Operation	14˚ - 104˚F (-10˚ - 40˚C)
	Temperature - Storage	-4˚ - 122˚F (-20˚ - 50˚C)
	Humidity	0 to 95% Relative Humidity, non condensing

** Specifications are subject to change without notification

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Frequently Asked Questions

Q What is the difference between the LR-400 and the LR-500?

A The LR-500 gives the user an opportunity to lockout unused channels and has the controls on the outside of the front door.

Q Can the LR-400 be used with multiple transmitters?

A Yes. The LR-400 can be used with multiple transmitters, but unlike the LR-500, it cannot be programmed to lock out channels.

Q How many receivers can I have in a system?

A As many as you need, the number is endless

Q What is the function of SQ?

A To reduce noise of our systems, Listen now offers a noise reduction technology called ListenSQ™ (on 72 MHz and 216 MHz only). Both the transmitter and receiver must have SQ on to achieve the desired results. If you are planning to use this product with older Listen systems or equipment not manufactured by Listen, you should disable SQ.

Q What is the warranty of Listen receivers?

A Limited lifetime warranty. The following cases will void the warranty:

- Misuse, dropping, or any other noticeable cosmetic damage
- Charging alkaline batteries instead of NiMH
- Overheating the charging process by closing the lid on the charging case.

Q How long do the batteries last on the LR-400 receiver?

A Alkaline batteries last 30 hours. NiMH rechargeable batteries last 15 hours (72 MHz and 216 MHz). With 863 MHz, Alkaline batteries last 20 hours and NiMH rechargeable batteries last 10 hours.

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LT-800 Stationary Transmitter

Don't miss a single sound. Listen®
www.listentech.com

Configuration

Stationary FM Transmitter (72 MHz)
Stationary FM Transmitter (216 MHz)
Stationary FM Transmitter (863 MHz)

Thanks to its outstanding audio quality, the Listen LT-800 Stationary Transmitter can be used in a variety of applications. The LT-800 is connected to your main audio system, broadcasting a high quality audio signal to belt pack receivers, stationary receivers, or wireless speaker / receivers. The end result – your audience can hear and understand the presentation better because of improved speaker placement or because they have their own belt pack and headset. The signature Look & Listen™ LCD shows channel, lock, programming and RF power.

Highlights

- Superior Audio Quality – 80 dB (70 dB with 863 MHz) signal-to-noise ratio, setting the industry's sound quality standard.
- A choice between 57 channels (17 channels with 863 MHz), complete antenna and accessory options make Listen products ideal for a wide range of applications.
- Long transmission range ensures coverage for the entire venue.
- Designed for installation – Rack mountable with remote antennas make installation easy and service reliable.
- Use the test tone or monitor jack to verify audio is present.
- Advanced audio processing (can be deactivated) ensures audio levels are consistent to users.
- Limited Lifetime Warranty with hassle-free support.

Includes:

LT-800 Stationary Transmitter
LA-201 Replacement Power Supply for LT-800/LR-100/LR-600 (72 & 216 MHz)
LT-800 manual (72 & 216 MHz)
LA-129 Right Angle Articulating Antenna (863 MHz)
LA-207 12 Volt DC Universal Power Supply (863 MHz)
Line Cord (863 MHz)
Quick Reference Card (863 MHz)
Limited Lifetime Warranty Program Card (863 MHz)
FM System Design Guide and Manual Card (863 MHz)

Requires:

LA-101 Helical Top Mounted Antenna (72MHz)
LA-102 Telescoping Top Mounted Antenna (216MHz)
LA-106 Telescoping Top Mounted Antenna (72 MHz)
LA-107 Ground Plane Remote Antenna (216 MHz)
LA-116 Coaxial Dipole Remote Antenna (72MHz)
LA-117 Coaxial Dipole Remote Antenna (216 MHz)
LA-122 Universal Antenna Kit (72 and 216 MHz)
LA-123 90° Helical Antenna (72 MHz)
LA-124 90° Degree Helical Antenna (216 MHz)
LA-129 90°Articulating Antenna (863 MHz)

Architectural Specification

LT-800-072/216 MHz
The stationary FM transmitter shall be capable of broadcasting on 57 channels. The transmitter shall have a SNR of 80 dB or greater. The output power shall be adjustable to quarter, half or full. Channel tuning shall be capable of being locked. The device shall broadcast on both wide and narrow band channels. The device shall have an audio frequency response of 50 Hz to 15k Hz, ± 3 dB at 72 MHz, or of 50 Hz to 10k Hz, ± 3 dB at 216 MHz. It shall have two mixing audio inputs. The device shall have the following audio controls: input level, mix level and an adjustable low pass filter. The device shall have an audio processor that is capable of automatic gain control and limiting. The Listen LT-800 is specified.

LT-800-863 MHz
The Stationary FM Transmitter shall be capable of broadcasting on 17 channels. Channel tuning shall be capable of being locked. The transmitter shall have a SNR of 70 db or greater. The output power shall be adjustable to quarter, half or full. The device shall have an audio frequency response of 50 Hz to 15 kHz, +/-3db. It shall have 2 mixing audio inputs and a mixed signal output. The device shall have the following audio controls: Input Levels, Mix Level, adjustable low pass filter (contour), headphone output (monitor). The device shall have an audio processor that is capable of automatic gain control and limiting. The Listen LT-800-863 is specified.

Used With:

LR-100-072 Stationary FM Receiver/Power Amplifier (72 MHz)
LR-100-216 Stationary FM Receiver/Power Amplifier (216 MHz)
LR-300-072 Portable Digital FM Receiver (72 MHz)
LR-400-072 Portable Display FM Receiver (72 MHz)
LR-400-216 Portable Display FM Receiver (216 MHz)
LR-400-863 Portable Display FM Receiver (863 MHz)
LR-500-072 Portable Programmable Display FM Receiver (72 MHz)
LR-500-216 Portable Programmable Display FM Receiver (216 MHz)
LR-500-863 Portable Programmable Display FM Receiver (863 MHz)
LR-600-072 Wireless FM Receiver/Speaker (72 MHz)
LR-600-216 Wireless FM Receiver/Speaker (216 MHz)

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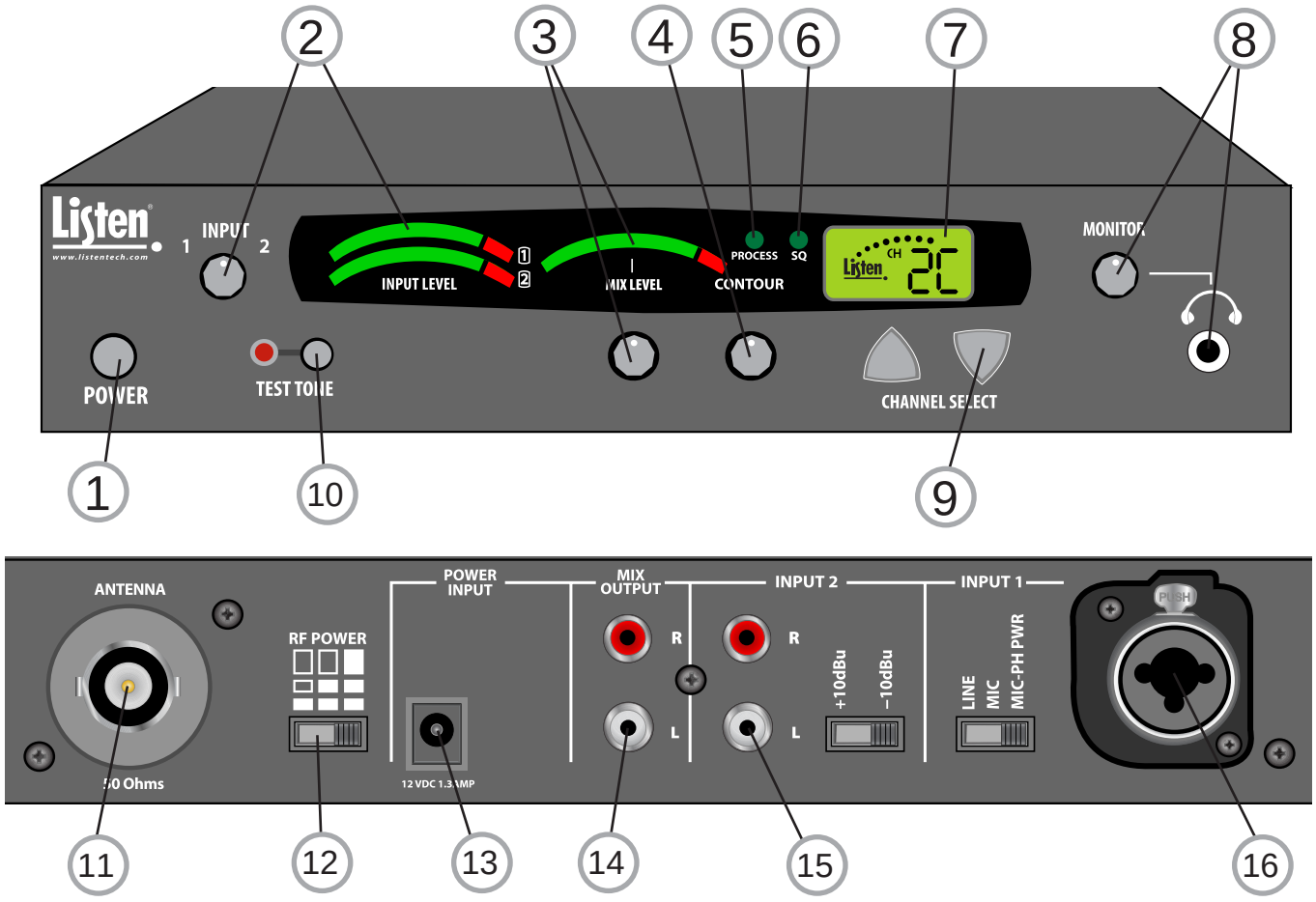

LT-800-072/216 MHz Product Features

1. POWER on/off on front of unit for easy access.
2. Multiple audio inputs, with input level control and dual VU meters.
3. Mix Level control sets level of mixed audio. VU meter shows the output level of your mixed audio.
4. Contour equalization cuts/boosts frequencies above 5 kHz.
5. Processing (automatic gain control and compression) can be turned on and off from the front panel.
6. SQ (Super Quiet Companding Technology) can be turned on and off from the front panel.
7. LCD display shows channel selected, channel lockout, programming and RF power.
8. Earphone jack and volume control to check audio integrity of transmission source.
9. UP/DOWN channel selection of 57 channels. User can easily change between Basic and Expanded modes.
10. The test tone level is adjustable, which adds flexibility when setting up and testing your system.
11. Top mount, rear mount, and remote antenna options.
12. Multiple transmitter power settings (full, ½ and ¼) with indication on LCD display.
13. In-line power supply (included) attaches here.
14. 2 phono connectors for a mixed output of Inputs 1 and 2.
15. 2 unbalanced phono audio inputs. Select either +10 dBu or -10 dBu.
16. Balanced XLR / ¼ inch audio input. Select either mic, line or mic phantom power level for input. Electret (Condenser) microphones can now be used with Input 1 phantom power.

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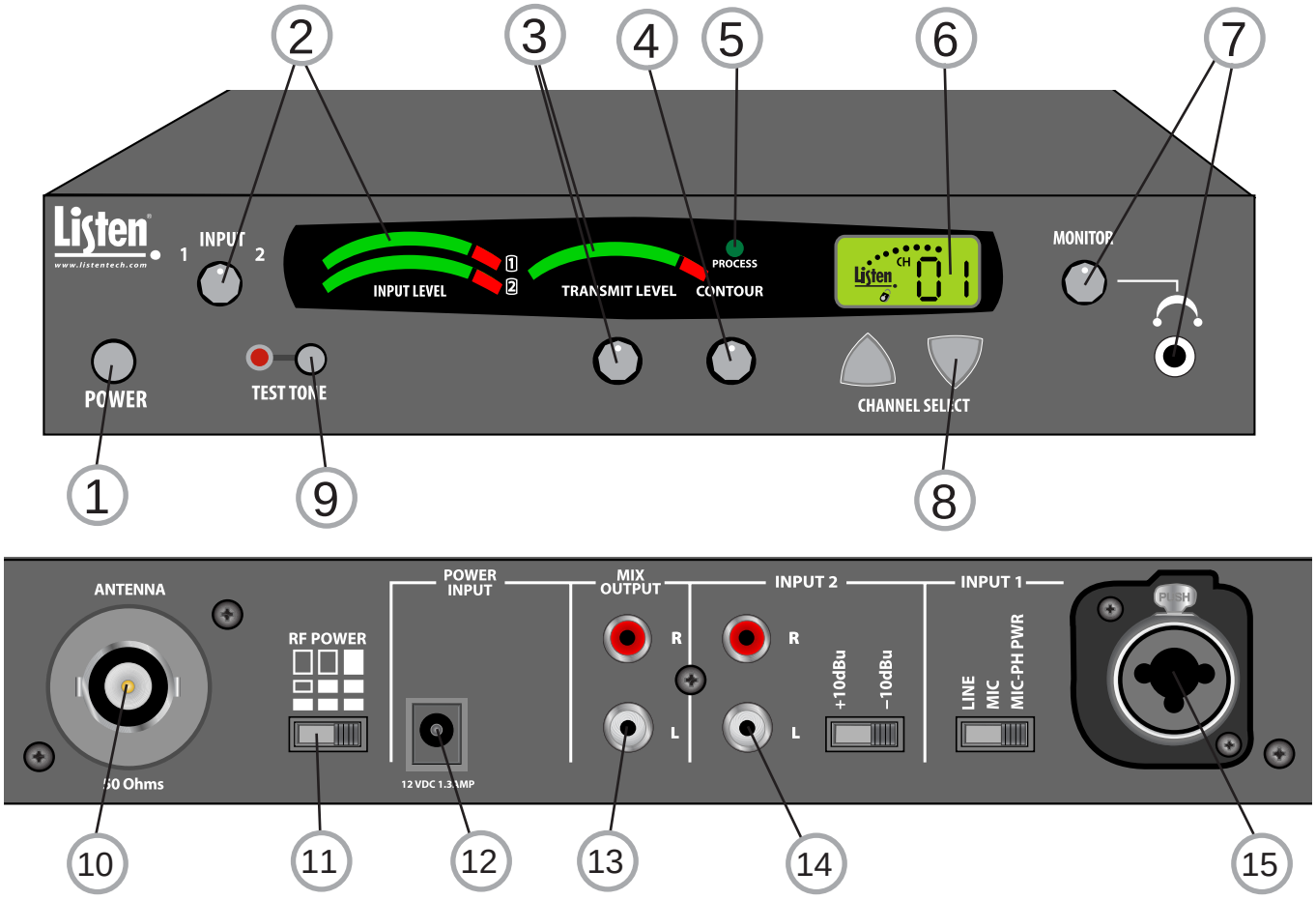

LT-800-863 MHz Product Features

1. POWER on/off on front of unit for easy access.
2. Multiple audio inputs, with input level control and dual VU meters.
3. Mix Level control sets level of mixed audio. VU meter shows the output level of your mixed audio.
4. Contour equalization cuts/boosts frequencies above 5 kHz.
5. Processing (automatic gain control and compression) can be turned on and off from the front panel.
6. LCD display shows channel selected, channel lockout, programming and RF power.
7. Earphone jack and volume control to check audio integrity of transmission source.
8. UP/DOWN channel selection of 17 channels.
9. The test tone level is adjustable, which adds flexibility when setting up and testing your system.
10. Rear mount and remote antenna options.
11. Multiple transmitter power settings (full, ½ and ¼) with indication on LCD display.
12. In-line power supply (included) attaches here.
13. 2 phono connectors for a mixed output of Inputs 1 and 2.
14. 2 unbalanced phono audio inputs. Select either +10 dBu or -10 dBu.
15. Balanced XLR / ¼ in. audio input. Select either mic, line or mic phantom power level for input. Electret (Condenser) microphones can now be used with Input 1 phantom power.

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Accessories

Antennas

LA-124

LA-101 Helical Top Mounted Antenna (72MHz)
LA-102 Telescoping Top Mounted Antenna (216MHz)
LA-106 Telescoping Top Mounted Antenna (72 MHz)
LA-107 Ground Plane Remote Antenna (216 MHz)
LA-116 Coaxial Dipole Remote Antenna (72MHz)
LA-117 Coaxial Dipole Remote Antenna (216 MHz)
LA-122 Universal Antenna Kit (72 and 216 MHz)
LA-123 90˚ Helical Antenna (72 MHz)
LA-124 90˚ Helical Antenna (216 MHz)
LA-125 Antenna Kit for Rack Mount (72 MHz)
LA-126 Antenna Kit for Rack Mount (216 MHz)
LA-129 Right Angle Articulating Antenna (863 MHz)
LA-130 Remote Antenna Kit (863 MHz)
LA-131 Antenna Kit for Rack Mount (863 MHz)

Power Supply

LA-207

LA-201 Replacement Power Supply for LT-800/LR-100/LR-600
LA-203 Replacement Power Supply for LA-317/LA-323
LA-207-01 12 VDC Replacement Power Supply for LT-800 (North America)
LA-207-02 12 VDC Replacement Power Supply for LT-800 (Asia, UK)
LA-207-03 12 VDC Replacement Power Supply for LT-800 (Euro)

Cables/ Connectors

LA-127

LA-112 RG-58 50 Ohm Coaxial Cable (Per ft.)
LA-113 RG-8 50 Ohm Low-Loss Coaxial Cable (Per ft.)
LA-115 RG-58 BNC Coupler
LA-121 BNC to Reverse BNC Adaptor (72MHz)
LA-127 RG-58 BNC Connector
LA-128 RG-8 BNC Connector
LA-390 RG-8/50 Ohm Preassembled Coaxial Cable (Per ft.)
LA-391 RG-58/50 Ohm Preassembled Coaxial Cable (Per ft.)

Miscellaneous

This facility is equipped with a hearing assistance system. Please ask for a receiver.
LISTEN TECHNOLOGIES CORPORATION
Listen

LA-304

LA-304 Assistive Listening Notification Signage Kit
LA-326 Universal Rack Mounting Kit
LA-80 2-Way RF Antenna Combiner
LA-81 4-Way RF Antenna Combiner (72 & 216 MHz)
LA-82 6-Way RF Antenna Combiner (72 & 216 MHz)

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www.listentech.com

	Specifications	LT-800-072	LT-800-216
RF	RF Frequency Range	72.025 - 75.950 MHz	216.025 - 216.975 MHz
	Number of Channels	57 (17 Wide, 40 Narrow)	57 (19 Wide, 38 Narrow)
	Frequency Accuracy	+/-.005% stability 32˚ to 122˚F (0˚- 50˚C)	
	Transmitter Stability	50 PPM	
	Output Power	80,000uV at 3 m	100mW (max allowed by FCC)
	Antenna	Several available. See www.listentech.com for details	
	Antenna Connector	Reverse BNC	BNC
	Compliance	FCC Part 15, Industry Canada	

** All system specifications are wireless end-to-end

Audio	System Frequency Response	50 Hz - 15 kHz (±3 dB)	50 Hz - 10 kHz (±3 dB)
	System Signal to Noise Ratio (A-Weighted)	SQ enabled; 80 dB; SQ disabled 60 dB	SQ enabled; 80 dB; SQ disabled 50 dB
	System Distortion	<2% THD at 80% deviation	
	Audio Input 1	Rear panel. Female-XLR and ¼ in. combo connector, balanced, 0/-55 dBu (line/mic) nominal input level adjustable, -30/+21 dBu (mic/line) maximum input level, impedance 20k/1k Ohms (line/mic), phantom power +12 VDC.	
	Audio Input 2	Rear panel. (2) Phono connectors, unbalanced, -10/+10 dBu nominal input level adjustable, +30 dBu maximum, impedance 100k Ohms.	
	Audio Processing (Process)	Compression can be turned on/off. Slope internally adjustable from 1:1 to 4:1. Default 2:1	
	Contour	Cuts and boosts frequencies above 5kHz	
	Combined Audio Output (Mix)	Rear panel. (2) Phono connectors, unbalanced, 0 dBu nominal output level, +19 dBu maximum, impedance 10 Ohms.	
	Headphone Output (monitor)	Front pane. (1) 3.5 mm connector, unbalanced, adjustable output level, maximum, impedance 10 Ohms. 350mW, 32 Ohms, 3.5 mm stereo.	

Controls	Front Panel	Power, Test Tone on/off, Channel UP/DOWN, Input level, Mix level, Contour, Headset level
	Rear Panel	Input 1 Level (line, mic, mic-phantom power), Input 2 Level (-10/+10 dBu), RF Power (low, mid, high)
	Internal Adjustments	Compression ratio for audio processor
	Programming	SQ on/off, Processing on/off

Indicators	Input 1, Input 2, Mix Level VU	8 Green, 2 Red
	SQ and Processing	Indicated by a green LED when on
	RF Power	Indicated on the LCD Display
	LCD Display	Channel designation, lock status, RF Power Level, programming
	Test Tone	Red LED illuminates when test tone enabled

Power	Power Supply Type	In-line power supply. Listen part number LA-201
	Power Supply Input	120 VAC, 60 Hz, 19 Watts
	Power Supply Output	15 VAC, 1000mA
	Power Supply Connector	.02 in. (5.0 mm) OD x .01 in. (2.5 mm) ID, barrel type
	Power Supply Compliance	UL Listed

Physical	Dimensions (H x W x D)	8.50 x 1.75 x 9.12 in. (21.6 x 4.45 x 21.16 cm)
	Color	Dark grey with white silk screening
	Unit Weight	3.0 lbs. (1.4 kg)
	Unit Weight with LA-201 Power Supply	4.4 lbs. (2.0 kg)
	Shipping Weight	5.0 lbs. (2.26 kg)
	Rack Mounting	1 rack unit, optional rack mount not included. Order Listen part number LA-326.

Environmental	Temperature - Operation	-10˚C (14˚F) to +40˚C (104˚F)
	Temperature - Storage	-20˚C (-4˚F) to +50˚C (122˚F)
	Humidity	0 to 95% Relative Humidity, non condensing

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	Specifications	LT-800-863
RF	RF Frequency Range	863.050 - 864.950 MHz
	Number of Channels	17 Wideband
	Frequency Accuracy	+/-.005% stability 32 to 122˚ (0 to 50˚C)
	Transmitter Stability	50 PPM
	Transmission Range	Up to 400 ft. (122m)
	Output Power	10mW ERP
	Antenna	Articulating Right Angle antenna
	Antenna Connector	BNC
	Compliance	CE, ETSI, RoHS
** All system specifications are wireless end-to-end		
Audio	System Frequency Response	50Hz - 15kHz (+/-3db)
	System Signal to Noise Ratio	70db (A-Weighted)
	System Distortion	<2% total harmonic distortion (THD) at 80% deviation
	Audio Input 1	Rear Panel. Female XLR and ¼ in. combo connector, balanced, 0/-55 dBU (line/mic) nominal input level adjustable, -30/+21 dBU (line/mic) maximum input level, impedance 20k/1k ohms (line/mic), phantom power +12VDC
	Audio Input 2	Rear Panel. (2) Phono Connectors, unbalanced, 10/+10dbu nominal input level adjustable, +30 dBU maximum, impedance 100K ohms
	Audio Processing (Process)	Compression can be turned on/off. Slope internally adjustable from 1:1 to 4:1. Default 2:1
	Contour	Cuts and boosts frequencies above 5kHz
	Combined Audio Output (Mix)	Input 1 and Input 2 Mixed Output (Rear Panel). (2) phono connectors, unbalanced, -10 dBU nominal output level, +19dbu maximum, impedance 10 ohms
	Headphone Output (Monitor)	Front Panel. (One) 3.5mm stereo connector, unbalanced, adjustable output level, +7dbu maximum, impedance 10 ohms. 100mW, 32ohms
Controls	Front Panel	Power, Test Tone on/off, Channel UP/DOWN, Input level, Mix level, Contour, Monitor, volume control
	Rear Panel	Input 1 Level (line, mic, mic-phantom power), Input 2 Level (-10/+10 dBu), RF Power (low, mid, high)
	Internal Adjustments	Compression ratio for audio processor
	Programming	Process on/off, Channel lock
Indicators	Input 1, Input 2, Mix Level VU	Indicates Input 1, Input 2, and Mix audio levels. 10 segment LED's (8 green, 2 red)
	Processing	Indicated by a green LED when on (front panel)
	RF Power	Indicated on the LCD (low, mid, high)
	LCD Display	Channel Designation, lock status, RF power level, programming (front panel)
	Test Tone	Red LED illuminates when test tone is enabled.
Power	Power Supply Type	In line switching mode supply, Listen part number LA-207
		Input: 100-240 VAC, 47-63 Hz
		Output: 12 VDC, 1.3A
		Output Connector: .02 in (5.0mm) OD, .01 in (2.5 mm) ID, barrel type
		Compliance: UL, CUL, PSE, TUV, CB, CE, RoHS
	Power Line Cord (detachable)	North America, Type B, (LT-800-863-01)
		Asia, UK, Type G, (LT-800-863-02)
		Euro Type J, (LT-800-863-03)
Physical	Dimensions (H x W x D)	1.75 x 8.50 x 9.13 in. (4.5 x 21.5 x 23 cm)
	Color	Dark Grey with white silk screening
	Unit Weight	2.6 lbs. (5.7 kg)
	Unit Weight with LA-207-03 Power Supply Euro Line Cord	4.4 lbs. (2.0 kg)
	Shipping Weight	5.0 lbs. (2.26 kg)
	Rack Mounting	One rack space height, 1/2 rack space wide. One or two transmitters can be mounted in one rack space. Optional Rack mount (LA-326) and LA-131 antenna kit for rack mount not included.
Environmental	Temperature - Operation	14˚ - 104˚F (-10˚- 40˚C)
	Temperature - Storage	-4˚ - 122˚F (-20˚ - 50˚C)
	Humidity	0 to 95% Relative Humidity, non condensing

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Frequently Asked Questions

Q Does the LT-800 include the rack mount?

A No, but an LA-326 Universal Rack Mounting Kit is available for purchase.

Q Do I need a transmitter for each audio source?

A Yes.

Q What is the range of the LT-800 transmitter?

A Line of site up to 1500 ft. (457 m) for 72 MHz.
Line of site up to 3,000 ft. (914 m) for 216 MHz.
Line of site up to 400 ft. (122 m) 863 MHz.

Q Is there a limit to the number of transmitters I can use in one room?

A Yes. The 72 MHz LT-800 has a maximum of six. The 216 MHz LT-800 has a maximum of three. The 863 MHz LT-800 has a maximum of eight.

Q How many receivers can I have on a system?

A As many as you want. The transmitter simply transmits a signal and you can have as many receivers pick that signal up as necessary. It's like a radio station transmitting and the receivers are the radios tuning into the "channel".

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Specifications

Main Mix Noise

(20 Hz–20 kHz bandwidth, 1/4" Main out, channels 1–6 Trim @ unity gain, channel EQs flat, all channels assigned to Main Mix, channels 1, 3 and 5 Pan left, 2, 4 and 6 Pan right.)

Main Mix fader down, channel faders down: –101 dBu

Main Mix @ unity, channel faders down: –91 dBu

(95 dB Signal to Noise Ratio, ref +4 dBu)

Main Mix fader @ unity, channel faders @ unity: –86 dBu

Total Harmonic Distortion (THD)

(1 kHz @ +14 dBu, 20 Hz–20 kHz bandwidth)

Mic pre @ insert:	0.0007%

Attenuation (Crosstalk)

(1 kHz relative to 0 dBu, 20 Hz–20 kHz bandwidth, Line in, 1/4" Main Out, Trim @ unity.)

Main Mix fader down:	–100 dBu
Channel Alt / Mute switch engaged:	–90 dBu
Channel fader down:	–90 dBu

Frequency Response

(Mic input to any output.)

20 Hz to 60 kHz:	+0 dB/–1 dB
20 Hz to 100 kHz:	+0 dB/–3 dB

Equivalent Input Noise (EIN)

(Mic in to Insert Send out, max gain.)

150 ohm termination:	–129.5 dBu, 20 Hz–20 kHz

Common Mode Rejection Ratio (CMRR)

(Mic in to Insert Send out, max gain.)

1 kHz:	better than –70 dB

Maximum Levels

Mic in:	+22 dBu
Tape in:	+16 dBu
All other inputs:	+22 dBu
Main Mix XLR out:	+28 dBu
All other outputs:	+22 dBu

Impedances

Mic in:	2.5 kilohms
Channel Insert return:	2.5 kilohms
All other inputs:	10 kilohms or greater
Tape out:	1.1 kilohms
All other outputs:	120 ohms

EQ

High Shelving	±15 dB @ 12 kHz
Mid Peaking	±15 dB @ 2.5 kHz
Low Shelving	±15 dB @ 80 Hz

Power Consumption

120 VAC, 50/60 Hz, 25 watts

Fuse Rating

100-120V:	500 mA slo blo, 5 x 20 mm
220-240V:	250 mA slo blo, 5 x 20 mm

Weight

9.5 lb (4.5 kg)

Dimensions (H x W x D)

12.9" x 14.0" x 3.2" (329 mm x 356 mm x 81 mm)

LOUD Technologies Inc. is always striving to improve our products by incorporating new and improved materials, components, and manufacturing methods. Therefore, we reserve the right to change these specifications at any time without notice.

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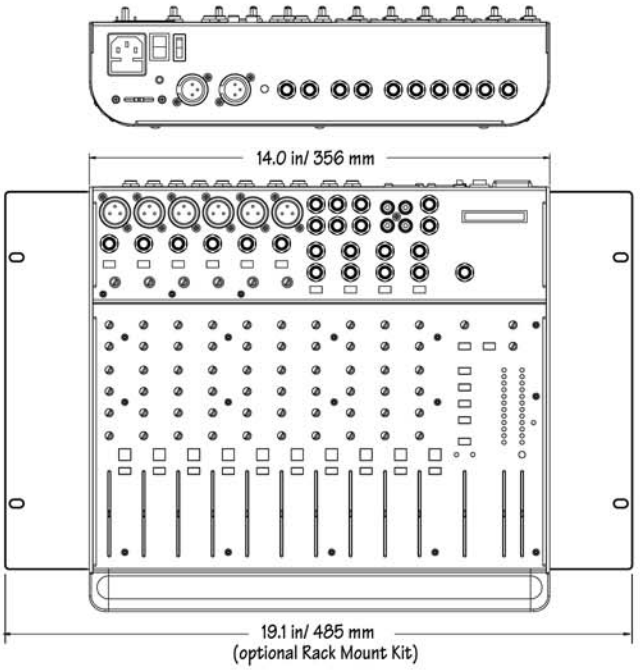
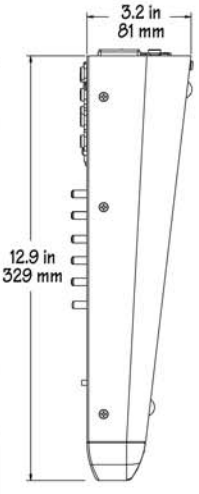




M-AUDIO

Studiophile™ BX5a Deluxe

English

User Guide

Introduction

Thank you for choosing the Studiophile Series BX5a Deluxe bi-amplified studio near-field monitor speakers. M-Audio is well known for digital audio interface technology, digital converters, audio preamps and mixers. Now, after extensive research and development, M-Audio is proud to present the Studiophile BX5a Deluxe.

The BX5a Deluxe was designed and tested by veteran audio engineers to meet your needs in a studio monitoring environment. It is focused on the functional goal of delivering pure, original sound without any additional coloration. The BX5a Deluxe monitor is self-powered, directly accepting a line-level signal from a variety of sources.

The Studiophile BX5a Deluxe is designed to overcome all the limitations of conventional studio reference monitors within the digital audio environment. This system delivers a wide-range frequency response by employing two extraordinary drivers and unique crossover technology licensed by M-Audio. It boasts a stable and balanced low-mid frequency response along with a defined mid and high-frequency response as well. Both drivers are magnetically shielded for desktop music production.

For pro engineers at commercial studios to home studio owners, the Studiophile BX5a Deluxe sets a new affordable standard in studio monitoring.

What's in the Box?

Your Studiophile BX5a Deluxe box contains:

- Two BX5a Deluxe speakers
- Two detachable AC power cords
- This manual

Studiophile BX5a Deluxe Features

1. Woofer

The woofer unit is 5 inches in diameter with a magnetically shielded Kevlar cone, high-temperature voice coil and damped rubber surround. It is designed to deliver balanced mid and low-frequency response. M-Audio's new BX5a Deluxe employs Kevlar for low-frequency driver construction. The same material used in bullet-proof vests, Kevlar's high resilience makes it ideal for use in speaker cones—although it is typically reserved for monitors with higher price tags than the BX5a Deluxe. Needless to say, Kevlar represents a significant improvement over the polypropylene and paper used in most monitors at this price.

2. Tweeter

By employing a specially developed 1-inch silk dome with magnetic shielding, the tweeter can deliver distortion-free original sound and offer an extremely natural response. Its design minimizes reaction time by using a specially shaped silk dome for excellent delivery, and also minimizes resonance by adapting a unique internal damping technology.

3. Sub-Frequency Port

The air vent hole in the rear panel is called a Sub-Frequency Vent Port and is designed to allow the discharge of extremely low frequencies occurring below 60Hz.

4. Enclosure

Like the other components, the BX5a's enclosure has an important role in shaping the overall sonic response. In order to provide more stable performance, the BX5a's enclosure employs a special high acoustic efficiency MDF and unique interior reinforcement designed to absorb vibration and impact generated under extreme conditions. The custom design on the front panel will aid in diffraction and will benefit stereo imaging.

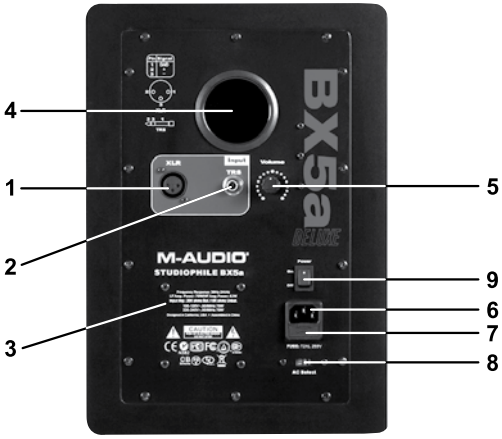
5. Network and Power Amplifiers

The active crossover network and power amplifiers for the BX5a Deluxe are specially designed for its woofer and tweeter. The network properly distributes low, mid, and high frequencies to the driver components in order to reduce distortion and loss of sound, thus achieving a naturally balanced sound.

In order to generate powerful, ultra-crisp sound, there are two separate power amplifiers inside the BX5a Deluxe for driving the woofer and tweeter separately in a high-end bi-amp structure. The power delivered to the woofer driver at a low-rated distortion is 40W, and 30W is also delivered to the tweeter.

Front and Rear Panel Features

Rear Panel Features



1. **XLR INPUT:** This jack accepts XLR input connections with either balanced or unbalanced wiring. The input wiring of an XLR connector should be as follows:
   - XLR PIN 1 . . . . . signal ground (shield)
   - XLR PIN 2 . . . . . signal positive (+)
   - XLR PIN 3 . . . . . signal negative (–)

2. **TRS INPUT:** This jack accepts 1/4" connections with either balanced or unbalanced wiring. For balanced wiring, a three-conductor TRS plug is necessary. The input wiring of a TRS connector should be as follows:
   - TRS TIP . . . . . signal positive (+)
   - TRS RING . . . . . signal negative (–)
   - TRS SLEEVE. . . . . signal ground (shield)

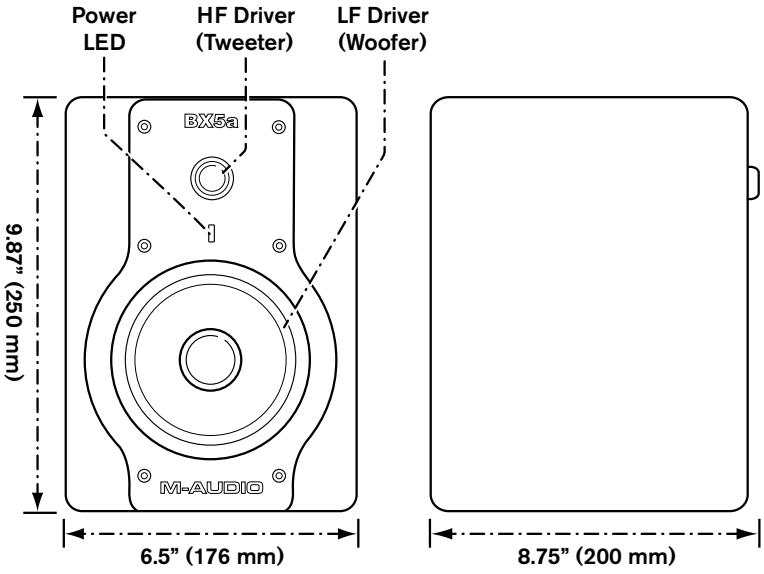
Unbalanced 1/4" wiring can be done with either a two- or three-conductor (TS or TRS) plug. A two-conductor (TS) plug automatically grounds the signal negative input, whereas a three-conductor (TRS) plug, wired unbalanced, provides the option of leaving the negative input open or grounded. We recommend that you ground the unused negative input (this can be done by wiring the ring and sleeve of the TRS plug together).

The TRS input is summed through a balanced input amplifier with the XLR input, allowing both inputs to be used simultaneously. Input specifications apply to both.

3. **PRODUCT SPECIFICATION:** This label contains the model and specification information.
4. **SUB-FREQUENCY VENT PORT:** This port aids in reproduction of very low frequencies by discharging frequencies below 60Hz.
5. **VOLUME CONTROL:** Use the volume control to set the output sound pressure from the BX5a Deluxe to proper levels as required.
6. **POWER RECEPTACLE**: Accepts a detachable 3-circuit line cord in order to power the monitor.
7. **FUSE HOLDER:** Holds the external main fuse.
8. **VOLTAGE-SELECT SWITCH:** Provides two selections, 115V AC and 230V AC, and should be set to match the "house supply" (receptacle) voltage of the country or location in which the speaker is used. The 115V setting is correct for the USA, while the 230V setting is correct for most of the UK and Europe.
9. **POWER SWITCH:** This switch turns the monitor on and off.

Front Panel Features

The front panel houses the Power LED, which indicates whether the speakers (amplifier) power is on or off.



Installation

For optimal performance of the BX5a Deluxe, please read the following thoroughly and carefully prior to installation.

Precautions

Handling: Please do not touch the speaker cones. The BX5a set is packaged in the box tightly, so your attention is required when taking the monitors out of the box. To avoid possible damage to the speaker units, hold both sides of the monitor in order to pull it out of the box. The speaker cones should not be touched in order to avoid damage even after they are out of the box.

Correct Power Operation: Since the BX5a Deluxe contains its own amplifier, it must be connected to a power outlet using the detachable AC cable provided. Before connecting power, please make sure that the Voltage-Select Switch located on the speaker's rear panel is set to the appropriate position, as described in the rear-panel features list appearing earlier in this manual.

> ***WARNING!*** *- Use of improper Voltage-Select Switch combinations may result in hazardous conditions and/or damage to speaker components not covered by speaker warranty.*

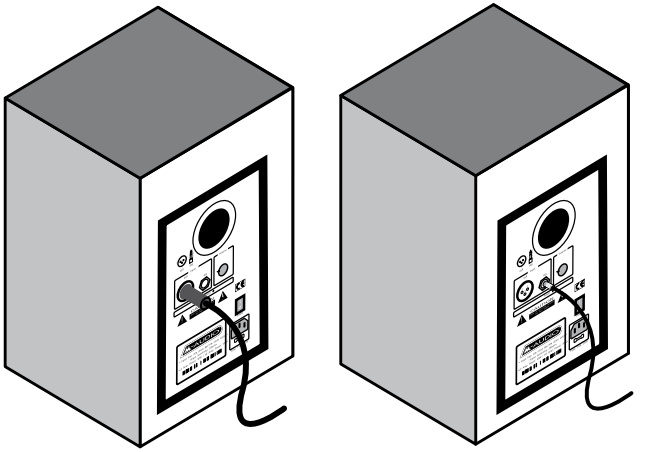
Connections: You can connect either an XLR balanced cable or TRS balanced/unbalanced cable from the input of each BX5a to your corresponding preamp, computer or game console outputs. We recommend that you use high-quality balanced or unbalanced cables for input connections. Also, ALWAYS turn off the power of the BX5a and turn the volume of the BX5a Deluxe down to a minimum before making the necessary connections.

XLR Balanced Connection

Assure that the power switch of the BX5a is turned off and that the volume control of the BX5a is turned down to a minimum. Connect the male end of an XLR balanced cable to the balanced input of the BX5a (refer to the following diagram for balanced connection).

TRS Balanced/Unbalanced Connection

Assure that the power switch of the BX5a is turned to off and that the volume control of the BX5a is turned down to a minimum. Connect the male end of a TRS balanced or TS unbalanced cable to the TRS input of the BX5a Deluxe (refer to the following diagram for TRS connection).



XLR Balanced Connection

1/4" TRS Balanced or Unbalanced Connection

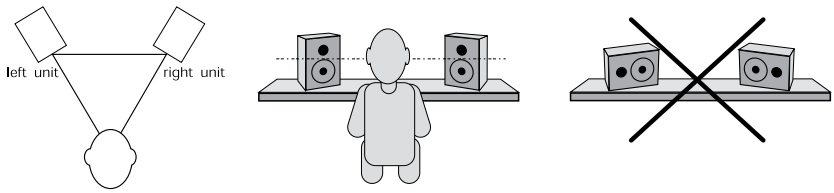
Connecting to Preamp or Computer Outputs

Before connecting, make sure the output device's power has been turned off. Plug the XLR balanced, TRS balanced or TS unbalanced cable to the corresponding output connectors of a pre-amplifier, computer or game console.

Placing the BX5a Deluxe

Placing the speakers is one of the most important procedures in order to monitor sound accurately. To monitor with the BX5a's performing to their maximum capability, an appropriate listening environment and correct placement are required. Please refer to the following for correct BX5a placement.

1. The two units and the listener should basically align to form a regular triangle. Refer to the following diagram.
2. Position the monitors so that the top of the woofers are level with your ears in a normal listening environment. Refer to the following diagram.
3. Place the BX5a's vertically with the woofer on the bottom. Placing the BX5a's horizontally is not recommended.



***Remarks**: DO NOT place any obstacles that may block the flow of air in front or between the monitors. Also remove reflective materials such as glass, mirrors or metal from the monitoring environment. PLACE THOSE MATERIALS AWAY FROM THE PATH OF THE SOUND FROM THE BX5a's.*

Warranty

Warranty Terms

M-Audio warrants products to be free from defects in materials and workmanship, under normal use and provided that the product is owned by the original, registered user.
Visit www.m-audio.com/warranty for terms and limitations applying to your specific product.

Warranty Registration

Immediately registering your new M-Audio product entitles you to full warranty coverage and helps M-Audio develop and manufacture the finest quality products available. Register online at www.m-audio.com/register to receive FREE product updates and for the chance to win M-Audio giveaways.

Appendix A - Technical Specifications

Type:	2-way near-field studio reference monitors
LF Driver:	5-inch Kevlar curved cone with high temperature voice coil and damped rubber surround. Magnetically shielded.
HF Driver:	1-inch magnetically shielded natural silk dome
Frequency Response:	56Hz - 22kHz
Crossover Frequency:	3kHz
LF Amplifier Power:	40W
HF Amplifier Power:	30W
S/N Ratio:	> 100dB typical A-weighted
Input Connectors:	1 x XLR balanced input connector 1 x TRS balanced/unbalanced input connector
Polarity:	positive signal at + input produce outward LF cone displacement
Input Impedance:	20k ohms balanced,10k ohms unbalanced
Input Sensitivity:	85mV pink noise input produces 90dBA output SPL at one meter with volume control at maximum
Protection:	RF interference, output current limiting, over temperature, turn-on/off transient, subsonic filter, external mains fuse.
Indicator:	power on/off indicator on rear panel
Power Requirements:	factory programmed for either 115V ~50/60Hz, 230V~50/60Hz or 100V~50/60Hz
Cabinet:	vinyl-laminated high acoustic efficiency MDF
Dimension:	250 mm (H) x 176 mm (W) x 200 mm (D)
Weight:	5.0 kg/unit (without packing)

** Above specifications subject to change without notice*

WARNING: This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. ***Wash hands after handling.***

M-AUDIO Studiophile BX5a Deluxe
Tested to comply with FCC standards
FOR HOME OR STUDIO USE

ACN 069 650 120

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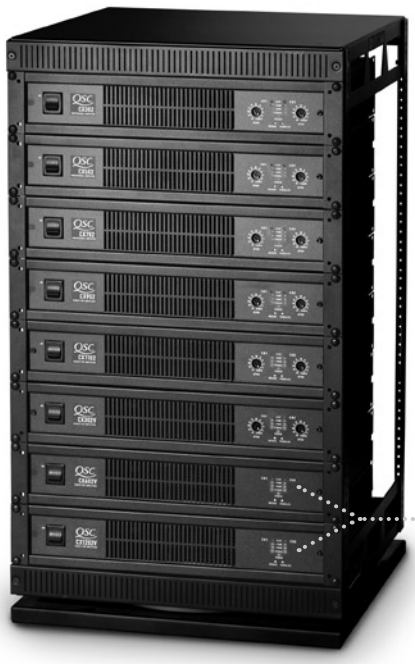
M-AUDIO

CX 2-channel
Professional Power Amplifiers

CX302 | CX502 | CX702 | CX902 | CX1102 | CX302V | CX602V | CX1202V



All models include an integrated security cover for tamper-proof installations

The CX Series is designed to meet the specialized needs of sound contractors. Eight 2-channel models have been designed from the ground up, combining the exclusive QSC PowerLight™ technology with specific features to meet the requirements of fixed installations.

With high-output power, versatile loading options, high thermal capacity and unmatched reliability, the CX Series is the perfect solution to any permanently installed sound system.

CX 2-channel Amplifiers

		Watts per channel		
Model	70 V*	8Ω**	4Ω**	2Ω†
CX302	–	200	325	600
CX502	–	300	500	800
CX702	–	425	700	1200
CX902	440	550	900	1500
CX1102	1000	700	1100	1700
CX302V	250	–	–	–
CX602V	440	550	–	–
CX1202V	1000	700	1100	–

**1 kHz, 0.05% THD*
***20 Hz – 20 kHz, 0.05% THD*
†1 kHz, 1% THD

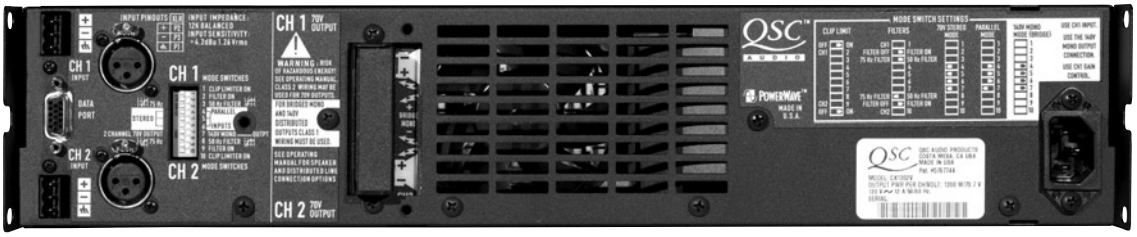
Features

- 8 models to meet your exact power requirements
- Exclusive PowerLight switch-mode power supply technology for high performance and compact size
- Custom integrated security cover for tamper proof installations
- Variable speed fan for low noise
- 1 dB detented gain controls for fast and accurate gain settings
- Active inrush limiting eliminates AC inrush current, removing the need for expensive power sequencers
- XLR and detachable Euro-style input connectors
- HD15 DataPort connector for QSControl computer control or signal processing accessories
- Dip switch control for clip limiters, high-pass filters, bridge-mono and parallel operation
- Selectable high-pass filters protect speakers and prevent speaker transformer saturation with minimal effect on program material (33 Hz or 75 Hz on non-V models, 50 Hz or 75 Hz on V models)
- Comprehensive front panel indicators including signal, clip, protect and QSC's exclusive bridge-mono and parallel input LEDs
- Barrier strip output connector
- Comprehensive protection circuitry including DC, infrasonic, thermal overload and short circuit protection
- Class H complementary bipolar output circuitry for high efficiency (CX702, CX902, CX1102 & CX1202V)
- Optional external transformer accessory pack for isolated 70 and 100 volt outputs (converts CX302 to 400 watts per channel isolated output)
- Compact size – all models only 2 RU and 14" deep for reduced rack cost and floor space
- Lightweight – all models only 21 pounds (9.5 kg) for easier racking and shipping
- 3-year warranty plus optional 3-year extended service contract

CX 2-Channel

Specifications

		CX302	CX502	CX702	CX902	CX1102	CX302V	CX602V	CX1202V
Stereo Mode (both channels driven)				Continuous average output power per channel					
8Ω / 20 Hz – 20 kHz / 0.05% THD		200 W	300 W	425 W	550 W	700 W	–	550 W	700 W
4Ω / 20 Hz – 20 kHz / 0.05% THD		325 W	500 W	700 W	900 W	1100 W	–	–	1100 W
2Ω / 1 kHZ / 1% THD		600 W	800 W	1200 W	1500 W	1700 W	–	–	-
70V / 20 Hz – 20 kHz / 0.05% THD		–	–	–	400 W	800 W	200 W	400 W	800 W
70V / 1 kHz / 0.05% THD		–	–	–	440 W	1000 W	250 W	440 W	1000 W
70V / 1 kHz / 1% THD		–	–	–	600 W	1200 W	300 W	600 W	1200 W
Bridge-Mono Mode				Bridge-mono mode operation					
16Ω / 20 Hz – 20 kHz / 0.1% THD		400 W	600 W	850 W	1100 W	1400 W	–	1100 W	1400 W
8Ω / 20 Hz – 20 kHz / 0.1% THD		700 W	1100 W	1500 W	2000 W	2200 W	–	–	2200 W
4Ω / 1 kHz / 1% THD		1200 W	1600 W	2400 W	3000 W	3400 W	–	–	–
140V / 20 Hz – 20 kHz / 0.1% THD		–	–	–	800 W	1600 W	400 W	800 W	1600 W
140V / 1 kHz / 0.05% THD		–	–	–	880 W	2000 W	500 W	880 W	2000 W
140V / 1 kHz / 1% THD		–	–	–	1200 W	2400 W	600 W	1200 W	2400 W
Signal to Noise (20 Hz – 20 kHz)		> -107 dB	> -107 dB	> -106 dB	> -106 dB	> -106 dB	> -106 dB	> -106 dB	> -106 dB
Input Sensitivity at 8Ω		1.26 Vrms	1.23 Vrms	1.16 Vrms	1.17 Vrms	1.35 Vrms	1.26 Vrms	1.26 Vrms	1.26 Vrms
Gain at 8Ω		30 dB	32 dB	34 dB	35 dB	35 dB	35 dB	35 dB	35 dB
Output Circuitry		Class AB+B	Class AB+B	2-tier Class H	2-tier Class H	2-tier Class H	Class AB+B	Class AB+B	2-tier Class H
Distortion (SMPTE-IM)		< 0.02%							
Distortion (typical)									
20 Hz – 20 kHz: 10 dB below rated power		< 0.01% THD							
1.0 kHz and below: full rated power		< 0.01% THD							
Frequency Response		20 Hz - 20 kHz, ± 0.2 dB							
Damping Factor		> 500							
Input Impedance		6k ohms unbalanced, 12k ohms balanced							
Input Clipping		10 Vrms (+22 dBu)							
Cooling		Variable-speed fan, rear-to-front air flow							
Connectors		Input: 3-pin XLR & 3-pin detachable terminal blocks (1 each per channel) Output: Safety shrouded barrier strip							
Amplifier Protection		Full short circuit, open circuit, thermal, ultrasonic, RF protection. Stable into reactive or mismatched loads							
Load Protection		On/off muting, DC-fault power supply shutdown							
Dimensions (HWD)		3.5" (8.9 cm) 2 RU x 19" (48.3 cm) rack mounting x 14" (35.6 cm) from front mounting rails							
Weight - Net / Shipping		21 lb (9.5 kg) / 27 lb (12.3 kg)							
120V Current Consumption	Idle	0.8 A	0.9 A	0.9 A	0.9 A	0.9 A	0.8 A	0.9 A	0.9 A
1/8 power pink noise (typical of program material at maximum unclipped power)	8Ω	3.8 A	5.6 A	5.0 A	6.0 A	7.6 A	–	–	–
	4Ω	6.0 A	9.0 A	7.9 A	9.5 A	11.6 A	–	–	–
	2Ω	9.6 A	14.0 A	11.8 A	14.0 A	16.6 A	–	–	–
	70V	–	–	–	–	–	5.7 A	8.7 A	12.0 A
1/3 power pink noise (typical of program material with severe clipping)	8Ω	5.4 A	8.0 A	8.4 A	11.0 A	13.1 A	–	–	–
	4Ω	8.9 A	13.3 A	13.5 A	17.0 A	20.0 A	–	–	–
	2Ω	14.3 A	21.0 A	22.0 A	27.0 A	–	–	–	–
	70V	–	–	–	–	–	8.0 A	13.0 A	19.0 A



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qscaudio.com

CX 4-channel
Professional Power Amplifiers

CX254 | CX404 | CX204V

All models include an integrated security cover for tamper-proof installations

The 4-channel CX amplifiers give you four channels in only two rack spaces, without compromising on power. Choose from three models, a direct 70 volt model and two low-impedance versions. Each model is equipped with exclusive QSC PowerLight™ switching power supply technology to virtually eliminate noise and hum. With high-output power, versatile loading options, high-thermal capacity and unmatched reliability, the CX Series is the perfect solution to any permanently installed sound system.

CX 4-channel Amplifiers

		Watts per channel		
Model	70V	8Ω	4Ω	2Ω
CX254	–	170	250	450*
CX404	–	250	400**	–
CX204V	200	–	–	–

20 Hz – 20 kHz, 0.05% THD
**1 kHz, 1% THD*
***1 kHz, 0.1% THD*

Features

- Three models that range in power from 170 watts to 450 watts per channel
- Compact size – all models only 2 RU and 14" deep for reduced rack cost and floor space
- Channels 1&2 and 3&4 bridgeable for maximum flexibility
- Active Inrush Limiting eliminates AC inrush current, removing the need for expensive power sequencers
- HD15 DataPort connector for QSControl computer control
- Custom integrated security cover for tamper-proof installations
- Variable speed fan for low noise
- 1 dB detented gain controls for fast and accurate gain settings
- Detachable Euro-style input connectors
- DIP switch control for clip limiters, high-pass filters, bridge-mono and parallel operation
- Exclusive PowerLight switch-mode power supply technology for high performance and compact size
- Selectable high-pass filters protect speakers and prevent speaker transformer saturation with minimal effect on program material (33 Hz or 75 Hz on CX254 and CX404, 50 Hz or 75 Hz on CX204V)
- Comprehensive front panel indicators including signal, clip, protect and QSC's exclusive bridge-mono and parallel input LEDs
- Barrier strip output connector
- Comprehensive protection circuitry including DC, infrasonic, thermal overload and short circuit protection
- High-performance Class AB+B complementary bipolar output circuitry
- Lightweight – all models only 21 pounds (9.5 kg) for easier racking and shipping
- 3-year warranty plus optional 3-year extended service contract

CX 4-Channel

Specifications

		CX254	CX404	CX204V
Stereo Mode (all channels driven)			Continuous average output power per channel	
8Ω / 20 Hz – 20 kHz / 0.05% THD		170 W	250 W	–
4Ω / 20 Hz – 20 kHz / 0.05% THD		250 W	400 W (0.1% THD, 1 kHz)	–
2Ω / 1 kHZ / 1% THD		450 W	–	–
70V / 20 Hz – 20 kHz / 0.05% THD		–	–	200 W
70V / 1 kHz / 0.05% THD		–	–	220 W
70V / 1 kHz / 1% THD		–	–	300 W
Bridge-Mono Mode			Bridge-mono mode operation	
16Ω / 20 Hz – 20 kHz / 0.1% THD		340 W	500 W	–
8Ω / 20 Hz – 20 kHz / 0.1% THD		500 W	800 W (0.1% THD, 1 kHz)	–
4Ω / 1 kHz / 1% THD		900 W	–	–
140V / 20 Hz – 20 kHz / 0.1% THD		–	–	400 W
140V / 1 kHz / 0.05% THD		–	–	440 W
140V / 1 kHz / 1% THD		–	–	600 W
Noise (20 Hz - 20 kHz)		-106 dB	-106 dB	-105 dB
Input Sensitivity		1.22 Vrms	1.22 Vrms	1.26 Vrms
Gain		29 dB at 8Ω	31 dB at 8Ω	35 db at 70.7V
Input Clipping		10 Vrms (+22 dBu)	10 Vrms (+22 dBu)	10 Vrms (+22 dBu)
Output Circuitry		Class AB+B	Class AB+B	Class AB+B
Distortion (SMPTE-IM)		< 0.01%	< 0.01%	< 0.02%
Distortion (typical)				
20 Hz – 20 kHz: 10 dB below rated power		< 0.01% THD		
1.0 kHz and below: full rated power		< 0.01% THD		
Frequency Response		20 Hz - 20 kHz, ± 0.2 dB | 8 Hz - 50 kHz, + 0/-3 dB		
Damping Factor		> 500 (1 kHz and below)		
Input Impedance		6k ohms unbalanced, 12k ohms balanced		
Cooling		Variable-speed fan/rear-to-front air flow through tunnel heat sink		
Connectors		Input: 3 position Euro style detachable barrier block, CH 1, 2, 3 & 4 DataPort: HD-15 Connector, Ch 1+2, Ch 3+4 Output: Six-position barrier strip with dual channel and bridge mono connections, Ch 1+2, Ch 3+4		
Controls		Front: AC swith, Ch 1, 2, 3 & 4 gain knobs Rear: DIP switch for Ch 1, 2, 3 & 4, clip limiter on/off, LF filter on/off, LF filter freq select 33 Hz or 75 Hz CX254 and CX 404: 50 Hz or 75 Hz CX204V: inputs parallel or stereo, bridge mode		
Indicators		Parallel Inputs: Yellow LED / Bridged: Yellow LED/ Power-on: Green LED Clip-Prot: Red LED / Level -10dB: Green LED / Level -20dB: Green LED / Signal -35dB: Green LED (1 per channel)		
Amplifier Protection		Full short circuit, open circuit, thermal, ultrasonic, and RF protection. Stable into reactive or mismatched loads		
Load Protection		On/off muting, DC-fault power supply shutdown		
Dimensions (HWD)		3.5" (8.9 cm) 2 RU x 19" (48.3 cm) rack mounting x 14" (35.6 cm) from front mounting rails		
Weight - Net / Shipping		21 lb (9.5 kg) / 27 lb (12.3 kg)		
Power Requirements		100, 120, 230 VAC, 50 – 60 Hz (configured at factory)		
120V Current Consumption*	Idle	0.7 A	0.7 A	0.8 A
1/8 power pink noise (typical of program material at maximum unclipped power)	8Ω	5.8 A	8.1 A	–
	4Ω	9.2 A	12.4 A	–
	2Ω	14.3 A	NR	–
	70V	–	–	8.3 A
1/3 power pink noise (typical of program material with severe clipping)	8Ω	8.8 A	12.2 A	–
	4Ω	14.2 A	19.3 A	–
	2Ω	21.7 A	NR	–
	70V	–	–	12.7 A

** Multiply currents by 0.5 for 230V units*

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Model SM58 Dynamic Microphone Specification Sheet

MODEL SM58®
UNIDIRECTIONAL DYNAMIC MICROPHONE

OVERVIEW

The Shure SM58® is a unidirectional (cardioid) dynamic vocal microphone designed for professonal vocal use in sound reinforcement and studio recording. A highly effective, built-in, spherical filter minimizes wind and breath “pop” noise. A cardioid pickup pattern isolates the main sound source while minimizing unwanted background noise. The SM58 has a tailored vocal response for a sound which is a world standard. Rugged construction, a proven shock mount system, and a steel mesh grille ensure that even with rough handling, the SM58 will perform consistently. Outdoors or indoors, singing or speech—the SM58 is the overwhelming choice of professionals worldwide.

FEATURES

- *Frequency response tailored for vocals, with brightened midrange and bass rolloff*
- *Uniform cardioid pickup pattern isolates the main sound source and minimizes background noise*
- *Pneumatic shock-mount system cuts down handling noise*
- *Effective, built-in spherical wind and pop filter*
- *Supplied with break-resistant stand adapter which rotates 180°*
- *Legendary Shure quality, ruggedness, and reliability*

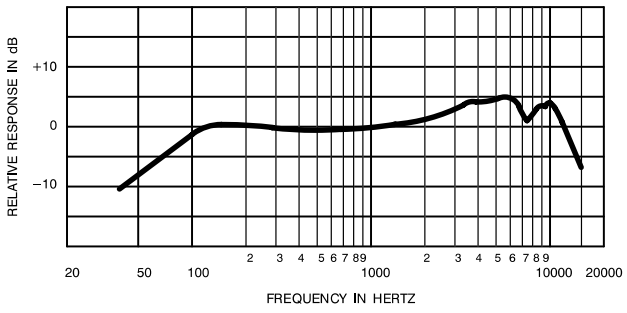
Models

SM58
SM58S (With On/Off Switch)

SPECIFICATIONS

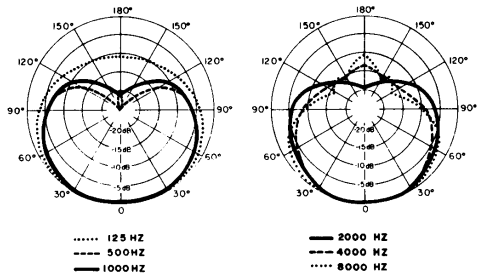
Type
Dynamic (moving coil)

Frequency Response
50 to 15,000 Hz



TYPICAL FREQUENCY RESPONSE

Polar Pattern
Unidirectional (cardioid), rotationally symmetrical about microphone axis, uniform with frequency (see Figure 3)



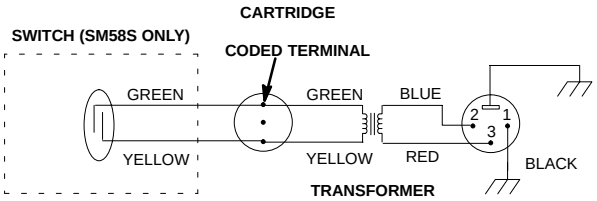
TYPICAL POLAR PATTERNS

Sensitivity (at 1,000 Hz Open Circuit Voltage)
–54.5 dBV/Pa (1.85 mV)
1 Pa = 94 dB SPL

Impedance
Rated impedance is 150 Ω (300 Ω actual) for connection to microphone inputs rated low impedance

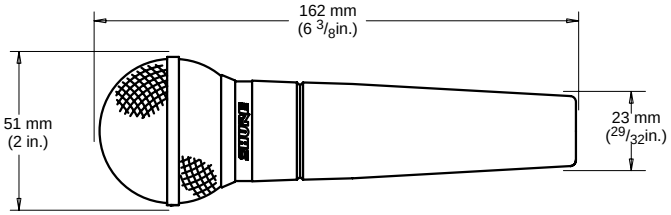
Polarity
Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3

Internal Connections



INTERNAL CONNECTIONS

Overall Dimensions



OVERALL DIMENSIONS

Connector

Three-pin professional audio connector (male XLR type)

Case

Dark gray, enamel-painted, die cast metal; matte-finished, silver colored, spherical steel mesh grille

Swivel Adapter

Positive-action, break-resistant, adjustable through 180°, with standard $^{5}/_{8}$ in.–27 thread

Net Weight

298 grams (10.5 oz)

FURNISHED ACCESSORIES

Swivel Stand Adapter A25D
Storage Bag 26A13

REPLACEMENT PARTS

Cartridge R59
Screen and Grille Assembly RK143G

OPTIONAL ACCESSORIES

Windscreen . . . . . A58WS Series (8 colors available)
Desk Stand S37A, S39A
Isolation Mount A55M
Dual Mount A26M
Cable (7.6 m [25 ft] C25E, C25F

SHURE

LEGENDARY
PERFORMANCE™

SHURE MODEL UA830
UHF IN-LINE RF AMPLIFIER

SHURE MODÈLE UA830
UHFAMPLIFICATEUR D'ANTENNE EN LIGNE RF

SHURE MODELL UA830
UHF IM ZEILE HF-ANTENNENVERSTÄRKER

MODELO UA830 DE SHURE
AMPLIFICADOR DE ANTENAS EN LINEA RF

MODELLO UA830 SHURE
UHF IN AMPLIFICATORE AD ANTENNA IN LINEA RF

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GENERAL

The Shure UA830 is a low-noise, in-line antenna amplifier. The UA830 is intended for remote-mounting antennas to a Shure Model UR4 or ULX receiver or Model UA845, or UA844 distribution amplifier in a large installation, effectively shortening the distance from the transmitters. The unit receives power through its output port from the Shure receiver or distribution amplifier. When an antenna is remote-mounted, the UA830 amplifies the received radio signals to compensate for insertion loss in the coaxial cable. A gain selector switch adjusts for longer lengths of coaxial cable.

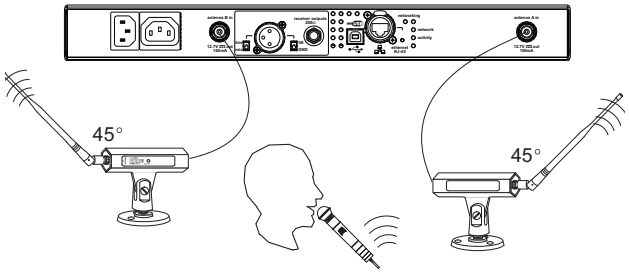
FEATURES

- Compatible with the Shure Model UR4 or ULX wireless microphone receiver and the Shure Model UA845, or UA844 Antenna Distribution System
- Mountable on supplied desk-/wall-mount or on a microphone stand
- Two-position gain selector switch to adjust for longer coaxial cable lengths (3 dB position for cables under 7 1/2 m [25 ft], 10 dB position for cables over 7 1/2 m [25 ft])
- Isolates antennas from cable interactions
- Extremely durable under the heaviest use
- Shure quality, ruggedness, and reliability

APPLICATION

IMPORTANT: DO NOT USE INFORMATION
This device must not be used with antennas or other devices that have a DC short circuit at their feed point without using an external (BNC) DC Block. A suitable BNC DC Block is the JFW Industries Model 50DB-002.

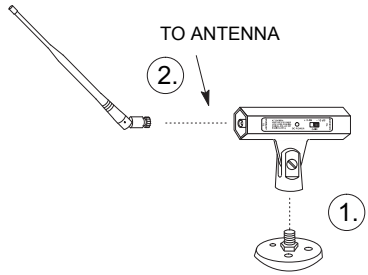
Techniques will vary from setup to setup according to different situations. Usually, the antennas should be as far apart as possible, creating the widest RF field and ensuring signal reception. In a diversity system such as the Shure Model UR4, as in the example in Figure 1, Shure recommends that the two antennas be positioned at 45° angles pointing away from each other (Figure 1). This way, the system is guaranteed the widest possible RF field, minimizing the chance of the RF signal dropping out. As a general recommendation, positioning should be tested and adjusted for each individual setup.



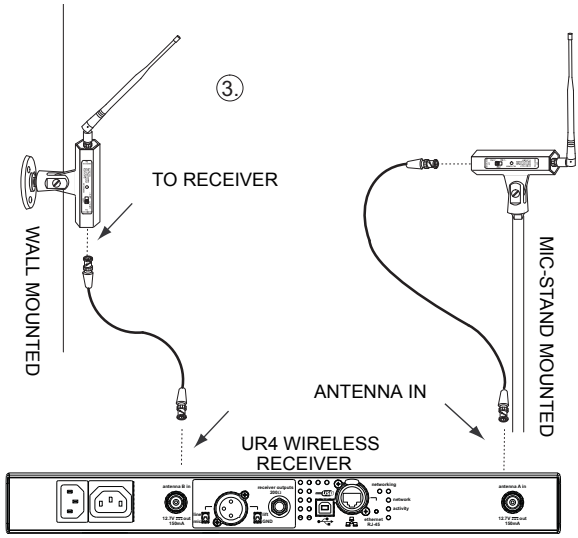
IN A DIVERSITY SYSTEM
FIGURE 1

INSTALLATION

1. Thread the Shure Model UA830 unit on the supplied stand (Figure 2), or on a 5/8 in.-27 thread microphone stand.
2. Connect the antenna to the TO ANTENNA port on the Model UA830 unit (Figure 2).
3. Using 50 W low-loss coaxial cable (purchased separately, Shure UA825 or UA850 or UA8100 recommended), connect the TO RECEIVER port of the UA830 to the Shure Model UR4 or ULX wireless receiver or UA845, or UA844 Antenna Distribution System (see Figure 3 for UR4 Receiver example).
4. If a second UA830 Line Amplifier is needed for extremely long cable runs (over 15 m [50 ft]), (Shure model UR4 and UA845 only) repeat steps 1 to 3. See Adjusting for Different Cable Lengths.

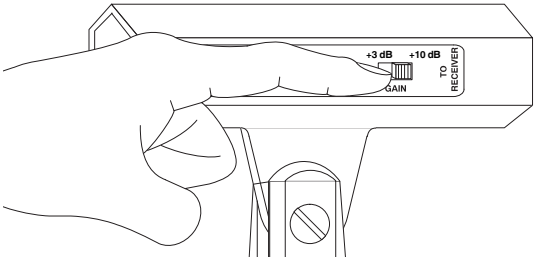


ATTACHING THE BASE AND ANTENNA
FIGURE 2



CONNECTING THE RECEIVER
FIGURE 3

ADJUSTING FOR DIFFERENT CABLE LENGTHS

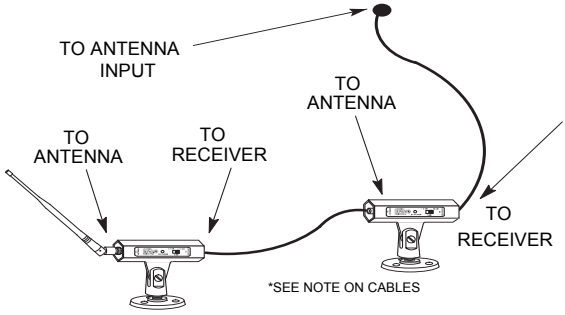


ADJUSTING FOR DIFFERENT CABLE LENGTHS
FIGURE 4

The longer the coaxial cable connecting the UA830 unit and the receiver or distribution amplifier, the greater the possibility for signal loss. The UA830 comes with a GAIN switch that can compensate for signal loss in longer cables. Shure recommends using the Shure UA825 or UA850 or UA8100 coaxial cable when remote mounting antennas. NOTE: Use only 50Ω low-loss cables (RG-8 or equivalent).

Set the switch according to these guidelines:

- UA825 Extension Cable (7.6 m [25 ft])-Set GAIN switch in 3 dB position.
- UA850 Extension Cable (15.2 m [50 ft])-Set GAIN switch in 10 dB position.
- UA8100 Extension Cable (30.4 m [100 ft])-Set GAIN switch in 10 dB position.
- If over 15.2 m (50 ft) is required, a maximum of two UA830's (Shure model UR4 and UA845 only) may be chained together. See Figure 5. The Gain switches for each UA830 must be adjusted separately. No more than two may be chained.



CHAINING TWO UA830's
FIGURE 5

*To maintain Shure UA825 and UA850 or UA8100 cables in top condition in permanent installations:

- Avoid sharp bends or kinks in the cables.
- Do not deform cables with makeshift clamps, such as bending a nail over the cable.
- Do not use cables in permanent outdoor installations
- Do not expose cables to extreme moisture

SPECIFICATIONS

RF Frequency Range

UA830A . . . . . 782-810 MHz
UA830KK . . . . . 838-862 MHz
UA830C . . . . . 800-830 MHz
UA830D . . . . . 774-782 MHz
UA830UB . . . . . 692-716 MHz
UA830WB . . . . . 470-900 MHz
UA830USTV . . . . . 470-698 MHz
UA830X. . . . . 944-952 MHz

Power Consumption (12 Vdc)

. . . . . 0.6 to 0.72 W

Signal Gain

Gain switch at 3 dB: . . . . . 3.0 dB ± 2.0 dB
Gain switch at 10 dB: . . . . . 10 dB ± 2.0 dB

Third Order Intercept Point (3 OIP)

. . . . . 28 dBm Min.

Connectors

. . . . . Female, BNC-type

Dimensions (without accessories)

66.7 mm high x 31.75 mm wide x 112 mm deep (2.625 x 1.250 x 4.40 inches), 108 mm (4.25 in.) high w/mounting stand

Case

. . . . . Aluminum die-casting, black painted

Swivel Adapter

Positive-action, break-resistant, adjustable from 0° to 90°, with standard 5/8 in.-27 thread

Net Weight (without cable)

Without mounting stand: . . . . . 0.28 kg (9.8 oz)
With mounting stand: . . . . . 0.42 kg (14.8 oz)

REPLACEMENT PARTS

Mounting Base A13HDB

For additional service or parts information, please contact Shure's Service department at 1-800-516-2525. Outside the United States, please contact your authorized Shure Service Center.

CERTIFICATION

UA830: Eligible for CE Marking. Meets requirements of EMC Standard EN 301 489 Parts 1 and 9. Meets the essential requirements of the European R&TTE Directive 99/5/EC.

THIS RADIO EQUIPMENT IS INTENDED FOR USE IN MUSICAL PROFESSIONAL ENTERTAINMENT AND SIMILAR APPLICATIONS.

NOTE: THIS RADIO APPARATUS MAY BE CAPABLE OF OPERATING ON SOME FREQUENCIES NOT AUTHORIZED IN YOUR REGION. PLEASE CONTACT YOUR NATIONAL AUTHORITY TO OBTAIN INFORMATION ON AUTHORIZED FREQUENCIES FOR WIRELESS MICROPHONE PRODUCTS IN YOUR REGION.

EU DECLARATION OF CONFORMITY

We, Shure Incorporated
of 5800 Touhy Avenue
Niles, Illinois, 60714-4608 U.S.A.
Phone: (847) 600-2000
Web: www.Shure.com

Declare under our sole responsibility that the following product

Model: UA830 Description: UHF Receiver Amplifier

conforms to the essential requirements and other relevant previsions of the R&TTE Directive (1999/5/EC).

The product complies with the following product family, harmonized or national standards:
EN 301 489-1 V1.4.1 (2002-08)
EN 301 489-9 V1.2.1 (2002-08)

The technical documentation is kept at:
Shure Incorporated, Corporate Quality Engineering Division
SHURE Europe GmbH, EMEA Approval

Manufacturer: Shure Incorporated

Signed: _____ Date: 16 November 2006
Name and Title: Craig Kozokar, EMC Project Engineer, Corporate Quality Engineering Division

European Representative: SHURE Europe GmbH

Signed: _____ Date: 16 November 2006
Name and Title: Wolfgang Bilz, Dipl. Ing. (FH), EMEA Approval
SHURE Europe GmbH
Headquarters Europe, Middle East & Africa
Wannenäcker Str. 28
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MODEL UA870
UHF ACTIVE DIRECTIONAL ANTENNA

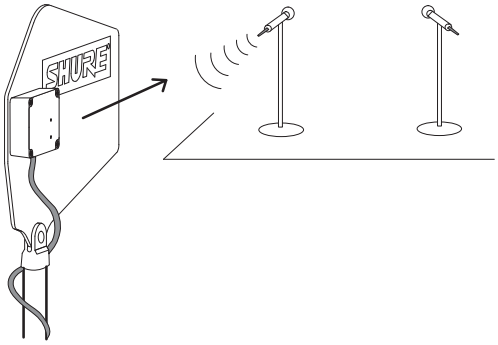

FIGURE 1
ABBILDUNG 1
FIGURA 1

NOTE: For additional technical assistance, call the Shure Customer Service Department for your region.

MODEL UA870 UHF ACTIVE DIRECTIONAL ANTENNA

The Shure UA870 is an active UHF wireless directional antenna. It featUR4es a log periodic dipole array. When compared to an omnidirectional 1/2-wave antenna, the cardioid pattern provided by the UA870 offers enhanced reception of the desired coverage area and greater rejection of RF signals outside the coverage area.

To compensate for coaxial cable signal loss, the UA870 has an on-board amplifier that offers user selectable 3 or 10 dB gain. The gain setting is indicated by two LEDs. Remote 12 Vdc power for the antenna amplifier is provided by a Shure UR4 or ULX Receiver or a Shure UA845 or UA844 Antenna Distribution System through the connecting coaxial cable.

The UA870 can be mounted on a microphone stand, suspended from the ceiling, or mounted to a wall using the integrated swivel adapter bracket. The UA870 is weather resistant for use outdoors. For best diversity performance, use two UA870 antennas.

INSTALLATION INSTRUCTIONS

1. Determine the length of cable required to connect the UA870 Antenna to the UR4 or ULX Receiver or UA845 or UA844 Antenna Distribution System.

IMPORTANT:
Always use low-loss 50 ohm cable, such as RG-8X or equivalent. Shure UA825 7.6 m (25 ft.) or UA850 15.2 m (50 ft.) or UA8100 30.4 m (100 ft) cables are recommended.

2. Set the gain switch to the appropriate setting. If you are using coaxial cables up to 7.6 m (25 ft.) long, select the 3 dB position. If using cables 7.6 m (25 ft.) or longer, select the 10 dB position. To access the gain switch, remove the cover of the preamplifier box (printed side) by unscrewing the foR UR4 screws at each corner. Gain settings are marked on the pc board inside.

NOTE: The UA870 gain control is factory preset at the 10 dB position.

3. Connect one end of the antenna cable to the UA870. Then mount the antenna so that it points toward the intended coverage area. See Figure 1.
4. Connect the other end of the antenna cable to the UR4 or ULX Receiver or UA845 or UA844 Antenna Distribution System. The gain LED on the UA870 illuminates to verify that power is being provided to the antenna.

IMPORTANT:
Always perform a "walk around" test to verify coverage before using a wireless system dUR4ing a speech or performance. Experiment with antenna placement to find the optimum location for the UA870.

SPECIFICATIONS

RF Frequency Range

UA870A	782-810 MHz
UA870KK	838-862 MHz
UA870MB	800-830 MHz
UA870MC	774-782 MHz
UA870UB	692-716 MHz
UA870WB	470-900 MHz
UA870USTV	470-698 MHz
UA870X	944-952 MHz

Power Source

Remote 12 Vdc from coaxial cable connection to receiver or antenna distribution system.

Power Consumption

UA870 (A, KK, MB, MC, UB, X):	0.81 W (12 Vdc)
UA870 (WB, USTV):	.68W (12Vdc)

Antenna Gain

7 dB typical (on axis)

Amplifier Gain

UA870 (A, KK, MB, MC, UB, X):	Gain Switch at 3 dB: 3 dB ± 2 dB
	Gain Switch at 10 dB: 10 dB ± 2 dB
UA870 (WB, USTV)	Gain Switch at 3 dB (–2, +1.5 dB)
	Gain Switch at 10 dB (–1 dB, +3.0 dB)

Third Order Intercept Point (3OIP) at output

More than 30 dBm

Reception Pattern

	Directional; Cardioid
3dB Beam Width:	100 degrees

Amplifier Gain Indicators

3 dB:	Green LED
10 dB:	Red LED

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27C8629 (Rev. 6)

Printed in USA

Connector

.....Female, BNC-type

Dimensions

UA870 (A, KK, MB, MC, UB, X):.....8.90 in. (226 mm) H x 9.21 in.
..... (234 mm) W x 1.60 in. (40.7 mm) D
UA870 (WB, USTV): ..... 12.45 in. (316.2 mm) H X 14.15 in.
.....(359.4 mm) W X 1.40 in. (35.5 mm) D

Stand Adapter

Positive-action, break resistant, adjustable from 0 to 90 degrees, with standard 5/8 in. -27 thread

Net Weight (without cable)

UA870 (A, KK, MB, MC, UB, X):.....8 oz. (227 grams)
UA870 (WB, USTV): .....11.2 oz (317 grams)

CERTIFICATION

The Shure Model UA870 UHF Active Directional Antenna meet the essential requirements of the European R&TTE Directive 99/5/EC and is eligible to carry the CE marking. Meets Requirements of EMC Standard EN 301 489 Parts 1 and 9.

IMPORTANT
This radio equipment is intended for use in musical professional entertainment and similar applications. This radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies for wireless microphone products in your region.

ANTENNE UHF DIRECTIONNELLE ACTIVE MODÈLE UA870

La Shure UA870 est une antenne UHF directionnelle active sans fil. Cette antenne comporte un reséau log-périodique bipolaire. La configuration cardioïde de la UA870 assure une réception de la zone de couverture désirée et une réjection des radiofréquences hors de cette zone supérieures à celle des antennes omnidirectionnelles 1/2 onde.

L'antenne UA870 est dotée d'un amplificateur intégré avec sélecteur de gain 3 ou 10 dB permettant de compenser les pertes de signal des câbles coaxiaux. Le réglage du gain est indiqué par deux témoins DEL. L'alimentation à distance 12 V c.c. de l'amplificateur d'antenne est assurée par un récepteur Shure UR4 ou ULX ou un répartiteur d'antenne Shure UA845 ou UA844 par l'intermédiaire du câble oaxial de raccordement.

La UA870 peut être montée sur un pied de microphone, suspendue au plafond ou fixée sur un mur au moyen du support adaptateur articulé intégral. Elle est résistante aux intempéries pour utilisation à l'extérieur. Pour une meilleure simultanéité, utiliser deux antennes UA870.

INSTRUCTIONS D'INSTALLATION

1. Déterminer la longueur de câble requise pour relier l'antenne UA870 au récepteur UR4 ou ULX ou au répartiteur UA845 ou UA844.

IMPORTANT :
Toujours utiliser un câble 50Ω à faible perte du type RG-8X ou équivalent. Les câbles Shure UA825 de 7,6 m ou UA850 de 15,2 m ou UA8100 de 30,4 m sont recommandés.

2. Mettre le sélecteur de gain sur le réglage approprié. Pour les câbles coaxiaux de 7,6 m ou moins, choisir la position 3 dB. Pour les câbles plus longs, utiliser la position 10 dB. Pour accéder au sélecteur de gain, retirer le couvercle du boîtier du préamplificateur (côté imprimé) en dévissant les quatre vis à chaque coin. Les différentes valeurs du gain sont marquées sur la carte de circuits imprimés, à l'intérieur.

REMARQUE: le sélecteur de gain de la UA870 est réglé en usine sur 10 dB.

3. Brancher l'une des extrémités du câble d'antenne sur la UA870 et monter l'antenne en la dirigeant vers la zone de couverture désirée. Voir la figure 1.
4. Brancher l'autre extrémité du câble d'antenne sur le récepteur UR4 ou ULX ou le répartiteur UA845 ou UA844. Les témoins de gain de l'antenne UA870 s'allument pour confirmer qu'elle est alimentée.

IMPORTANT:
Toujours effectuer un essai de déplacement avant d'utiliser un système sans fil pour un discours ou une représentation. Essayer différents placements d'antenne pour déterminer la position optimale de la UA870.

REMARQUE: pour toute assistance technique supplémentaire, contacter le Service entretien Shure au 1-800-434-3350. En Europe, appeler le 49-7131-72140.

CARACTÉRISTIQUES

Courbe de réponse RF

UA870A ..... 782 à 810 MHz
UA870KK..... 838 à 862 MHz
UA870MB ..... 800 à 830 MHz
UA870MC ..... 774 à 782 MHz
UA870UB..... 692 à 716 MHz
UA870WB ..... 470 à 900 MHz
UA870USTV ..... 470 à 698 MHz
UA870X ..... 944 à 952 MHz

Source d'alimentation

12 V c.c. à distance du raccordement de câble coaxial au récepteur ou au répartiteur.

Consommation de courant

UA870 (A, KK, MB, MC, UB, X):.....0,81 W (12 V c.c.)
UA870 (WB, USTV): .....0,68 W (12 V c.c.)

Gain d'antenne

..... 7 dB typique (sur l'axe)

Gain d'amplificateur

UA870 (A, KK, MB, MC, UB, X):..... Sélecteur de gain à 3 dB : 3 dB ± 2 dB
..... Sélecteur de gain à 10 dB : 10 dB ± 2 dB
UA870 (WB, USTV): ..... Sélecteur de gain à 3 dB : (–2 dB, +1,5 dB)
..... Sélecteur de gain à 10 dB : (–1 dB, + 3,0 dB)

Point d'interception de troisième ordre

(3OIP) à la sortie ..... Plus de 30 dBm

Configuration

.....Directionnelle, cardioïde
Largeur de faisceau à 3 dB : ..... 100 degrés

Témoins DEL de gain d'amplificateur

3 dB : .....DEL verte
10 dB : .....DEL rouge

Connecteur

.....Femelle, type BNC

Dimensions

UA870 (A, KK, MB, MC, UB, X):..... H 226 x L 234 x P 40,7 mm
UA870 (WB, USTV): ..... H 316,2 x L 359,4 x P 35,5 mm

Adaptateur articulé

Action directe, résistant aux chocs, réglable de 0 à 90 degrés avec filetage standard 5/8 po -27

Poids net (sans câble)

UA870 (A, KK, MB, MC, UB, X): .....227 grammes
UA870 (WB, USTV): .....317 grammes

HOMOLOGATION

L'antenne UHF directionnelle active modèle Shure UA870 est conforme aux exigences essentielles de la directive européenne R&TTE 99/5/CE et est autorisée à porter la marque CE. Conforme EMC selon la norme EN 301 489 Parties 1 et 9.

IMPORTANT !
CE MATÉRIEL RADIO EST PRÉVU POUR UTILISATION EN SPECTACLES PROFESSIONNELS ET APPLICATIONS SIMILAIRES.
REMARQUE : IL EST POSSIBLE QUE CE MATÉRIEL SOIT CAPABLE DE FONCTIONNER SUR CERTAINES FRÉQUENCES NON AUTORISÉES LOCALEMENT. SE METTRE EN RAPPORT AVEC LES AUTORITÉS COMPÉTENTES POUR OBTENIR LES INFORMATIONS SUR LES FRÉQUENCES AUTORISÉES POUR LES SYSTÈMES DE MICROPHONES SANS FIL LOCALEMENT

AKTIVE UHF-RICHTANTENNE MODELL UA870

Die Shure UA870 ist eine aktive drahtlose UHF-Richtantenne. Sie weist ein logarithmisch-periodisches Dipolfeld auf. Im Vergleich mit einer Rundstrahl-Halbwellenantenne bietet das Kardioidenmuster der UA870 einen verbesserten Empfang des gewünschten Erfassungsbereichs und eine stärkere Unterdrükkung von HF-Signalen außerhalb des Erfassungsbereichs.

Zur Kompensation von Koaxialkabel-Signalverlusten verfügt die UA870 über einen eingebauten Verstärker, der dem Benutzer die Auswahl zwischen einer Verstärkung von 3 oder 10 dB ermöglicht. Die Verstärkungseinstellung wird durch zwei LEDs angezeigt. Die Fernspeisung des Antennenverstärkers mit 12 V–Gleichspannung erfolgt durch einen Empfänger Shure UR4 oder ULX oder ein Antennenverteilsystem Shure UA845 oder UA844 durch die Koaxialkabelverbindung.

Die UA870 kann auf einem Mikrofonstativ angebracht werden, von der Decke herabgehängt werden oder mit Hilfe der integrierten Schwenkadapterhalterung an einer Wand befestigt werden. Die UA870 ist wetterbeständig und für die Verwendung im Freien geeignet. Bester Diversityempfang wird bei Verwendung von zwei Antennen des Modells UA870 erzielt.

INSTALLATIONSANWEISUNGEN

1. Die erforderliche Kabellänge für den Anschluss der Antenne UA870 an den Empfänger UR4 oder ULX oder das Antennenverteilsystem UA845 oder UA844 ermitteln.

WICHTIG:
Stets ein verlustarmes 50Ω-Kabel, wie z.B. RG-8X oder ein gleichwertiges Kabel, verwenden. Wir empfehlen die Kabel Shure UA825 mit 7,6 m oder UA850 mit 15,2 m oder UA8100 mit 30,4 m.

2. Den Pegelsteller auf den gewünschten Wert einstellen. Wenn bis zu 7,6 m lange Koaxialkabel verwendet werden, die Einstellung 3 dB auswählen. Wenn Kabel mit mehr als 7,6 m Länge verwendet werden, die Einstellung 10 dB auswählen. Der Verstärkungsschalter wird durch Entfernen der Abdeckung des Vorverstärkergehäuses (bedruckte Seite) zugänglich; dazu müssen die vier Schrauben an jeder Ecke aufgeschraubt werden. Die Verstärkungseinstellungen sind auf der Leiterplatte im Innern markiert.

HINWEIS: Der Pegelsteller der UA870 wird werksseitig auf 10 dB eingestellt.

3. Ein Ende des Antennenkabels an die UA870 anschließen. Dann die Antenne so anbringen, dass sie auf den gewünschten Erfassungsbereich gerichtet ist. Siehe Abbildung 1.
4. Das andere Ende des Antennenkabels an den Empfänger Shure UR4 oder ULX oder das Antennenverteilsystem Shure UA845 oder UA844 anschließen. Die Verstärkungs-LEDs an der UA870 leuchten auf und zeigen dadurch an, dass die Stromversorgung an der Antenne anliegt.

WICHTIG:
Vor der Verwendung eines drahtlosen Systems bei einer Rede oder Vorstellung stets den Bereich abschreiten, um die Erfassung zu prüfen. Verschiedene Platzierungen der Antenne testen, um die optimale Stellung für die UA870 zu bestimmen.

HINWEIS: Weitere technische Unterstützung wird von der Shure Kundendienstabteilung unter der Rufnummer 1 (800) 434-3350 geleistet (nur innerhalb der USA). In Europa bitte ++49 (7131) 72140 anrufen.

TECHNISCHE DATEN

HF-Frequenzbereich

UA870A ..... 782-810 MHz
UA870KK ..... 838-862 MHz
UA870MB ..... 800-830 MHz
UA870MC ..... 774-782 MHz
UA870UB ..... 692-716 MHz
UA870WB ..... 470-900 MHz
UA870USTV ..... 470-698 MHz
UA870X ..... 944-952 MHz

Stromversorgung

Fernspeisung mit 12 V–Gleichspannung erfolgt durch die Koaxialkabelverbindung zum Empfänger oder Antennenverteilsystem.

Leistungsaufnahme

UA870 (A, KK, MB, MC, UB, X): ..... 0,81 W (12 V DC)
UA870 (WB, USTV): ..... 0,68 W (12 V DC)

Antennengewinn

..... 7 dB typisch (axial)

Verstärkungsfaktor

UA870 (A, KK, MB, MC, UB, X): Verstärkungsschalter bei 3 dB: 3,0 dB ± 2,0 dB
..... Verstärkungsschalter bei 10 dB: 10 dB ± 2,0 dB
UA870 (WB, USTV): ..... Verstärkungsschalter bei 3 dB: (–2 dB, +1,5 dB)
..... Verstärkungsschalter bei 10 dB: (–1 dB, +3,0 dB)

Intercept-Punkt dritter Ordnung

(3 OIP) am Ausgang..... Mehr als 30 dBm

Empfangsmuster

..... Richtcharakteristik, Kardioidenmuster
3 dB Keulenbreite: ..... 100 Grad

Verstärkungsfaktor-Anzeigen

3 dB: ..... Grüne LED
10 dB: ..... Rote LED

Steckverbindungen

..... BNC-Buchsen

Abmessungen

UA870 (A, KK, MB, MC, UB, X):.. 226 mm hoch x 234 mm breit x 40,7 mm tief
UA870 (WB, USTV): ..... 316,2 mm hoch x 359,4 mm breit x 35,5 mm tief

Stativadapter

Zwangsführung, bruchfest, von 0 bis 90 Grad einstellbar,
mit 5/8 Zoll -27 Standardgewinde

Nettogewicht (ohne Kabel)

UA870 (A, KK, MB, MC, UB, X):..... 227 g
UA870 (WB, USTV): ..... 317 g

ZULASSUNGEN

Die aktiven UHF–Richtantennen Shure Modell UA870 entsprechen den Grundanforderungen der europäischen R&TTE–Richtlinie 99/5/EC und sind zum Tragen des CE–Zeichens berechtigt. Erfüllt die Anforderungen der Norm EN 301 489 Teile 1 und 9 bzgl. elektromagnetischer Verträglichkeit.

WICHTIG!
DIESES FUNKGERÄT IST ZUR VERWENDUNG IM UNTERHALTUNGSGEWERBE UND IN ÄHNLICHEN ANWENDUNGEN VORGESEHEN.

HINWEIS: DIESES FUNKGERÄT KANN MÖGLICHERWEISE AUF EINIGEN FREQUENZEN ARBEITEN, DIE IN IHREM GEBIET NICHT ZUGELASSEN SIND. WENDEN SIE SICH BITTE AN DIE ZUSTÄNDIGE BEHÖRDE, UM INFORMATIONEN ÜBER ZUGELASSENE FREQUENZEN FÜR DRAHTLOSE MIKROFONPRODUKTE IN IHREM GEBIET ZU ERHALTEN.

ANTENNA UHF DIRETTIVA, ATTIVA, MODELLO UA870

Il modello Shure UA870 è un'antenna UHF direttiva. Impiega una schiera di dipoli periodici con allineamento logaritmico. Rispetto ad un'antenna a mezz'onda omnidirezionale, il diagramma polare a cardioide del modello UA870 presenta una ricezione superiore nell'angolo di ricezione desiderato ed una reiezione maggiore dei segnali a radiofrequenza fuori dell'angolo di ricezione.

Per compensare l'attenuazione dei segnali nel cavo coassiale, l'antenna UA870 incorpora un amplificatore il cui guadagno può essere regolato su 3 o 10 dB. L'alimentazione remota da 12 V c.c. per l'amplificatore d'antenna viene fornita da un ricevitore UR4 o ULX Shure o da un sistema di distribuzione ad antenne UA845 o UA844 Shure attraverso il cavo coassiale di collegamento.

L'antenna UA870 può essere montata su un supporto per microfono, sospesa da soffitto oppure montata ad una parete utilizzando la staffa di montaggio a snodo integrale. L'antenna è resistente alle intemperie e quindi può essere usata all'aperto. Per ottenere i migliori risultati mediante un sistema a diversità, utilizzare due antenne UA870.

ISTRUZIONI PER L'INSTALLAZIONE

1. Determinare la lunghezza del cavo necessario per collegare l'antenna UA870 al ricevitore UR4 o ULX o al sistema di distribuzione ad antenne UA845 o UA844.

IMPORTANTE

Usare sempre un cavo da 50Ω a bassa attenuazione, come un cavo RG-8X o equivalente. Si raccomandano i cavi Shure UA825 da 7,6 m o UA850 da 15,2 m o UA8100 da 30,4 m.

2. Regolare il guadagno sul valore opportuno agendo sull'apposito interruttore. Se si usano cavi coassiali lunghi fino a 7,6 m, regolare il guadagno su 3 dB. Se si usano cavi coassiali lunghi fino a 15,2 m, regolare il guadagno su 10 dB. Per accedere all'interruttore di regolazione guadagno, togliere il coperchio della cassetta del preamplificatore (lato stampato) estraendo le quattro viti di fissaggio (una in ciascun vertice). I valori di regolazione del guadagno sono riportati sulla scheda di circuiti all'interno.

   NOTA: in fabbrica l'interruttore di regolazione guadagno dell'antenna UA870 è stato regolato sulla posizione corrispondente a 10 dB.

3. Collegare un'estremità del cavo di antenna all'antenna UA870. Montare poi l'antenna in modo che sia rivolta verso l'angolo di ricezione desiderato. Vedi Figura 1.
4. Collegare l'altra estremità del cavo di antenna al ricevitore UR4 o ULX o al sistema di distribuzione ad antenne UA845 o UA844. I LED sull'antenna UA870 si accendono per indicare che l'antenna è alimentata.

IMPORTANTE

Quando, in un convegno o in una rappresentazione, si usa un sistema senza fili, eseguire sempre una prova nell'area in cui ci si muoverà, per verificare l'efficacia della ricezione dell'antenna. Collocare l'antenna UA870 in vari punti per individuarne la posizione ottimale.

NOTA: per assistenza tecnica, chiamare il Reparto Assistenza della Shure al numero verde 1-800-434-3350 (solo negli USA). In Europa, chiamare il numero 0049-7131-72140.

DATI TECNICI

Gamma di frequenze

UA870A ..... 782-810 MHz
UA870KK ..... 838-862 MHz
UA870MB ..... 800-830 MHz
UA870MC ..... 774-782 MHz
UA870UB ..... 692-716 MHz
UA870WB ..... 470-900 MHz
UA870USTV ..... 470-698 MHz
UA870X ..... 944-952 MHz

Alimentazione

Remota, 12 V c.c., dal cavo coassiale di collegamento al ricevitore o al sistema di distribuzione ad antenne.

Assorbimento di potenza

UA870 (A, KK, MB, MC, UB, X): .....0,81W ± (12 Vc.c.)
UA870 (WB, USTV): .....0,68 W (12 Vc.c.)

Guadagno di antenna

..... 7 dB valore tipico (lungo l'asse)

Guadagno di segnale amplificatore

UA870 (A, KK, MB, MC, UB, X):.....
Interruttore del guadagno a 3 dB: .....3,0 dB ± 2,0 dB.
Interruttore del guadagno a 10 dB: .....10 dB ± 2,0 dB.

UA870 (WB, USTV): .....
Interruttore del guadagno a 3 dB: .....(–2 dB, +1.5 dB)
Interruttore del guadagno a 10 dB: .....(–1 dB, +3.0 dB)

Punto d'intersezione della terza armonica

(3OIP) all'uscita.....Oltre 30 dBm

Diagramma di ricezione

.....Direzionale, a cardioide.
Angolo di apertura (3 dB): .....100 gradi.

Spie del guadagno dell'amplificatore

3 dB: ..... LED verde.
10 dB: ..... LED rosso.

Connettori

.....BNC femmina

Dimensioni

UA870 (A, KK, MB, MC, UB, X): ..... A 226 x L 234 x P 40,7 mm
UA870 (WB, USTV): ..... A 316,2 x L 359.4x P 35,5 mm

Adattatore a snodo

Senza slittamento, resistente a sollecitazioni di rottura, regolabile tra 0 e 90 gradi, con filettatura standard 5/8 di pollice -27.

Peso netto (senza cavo)

UA870 (A, KK, MB, MC, UB, X): .....227 g
UA870 (WB, USTV): .....317 g

OMOLOGAZIONI

L'antenna UHF direttiva attiva Shure modello UA870 è conforme ai requisiti essenziali specificati nella direttiva europea 99/5/CE o R&TTE e può essere contrassegnato con il marchio CE. Omologazione: conforme ai requisiti relativi alla compatibilità elettromagnetica, normativa EN 301 489 Parte 1 e 9.

IMPORTANTE

QUESTO APPARECCHIO RADIO È INTESO PER L'USO NELL'INTRATTENIMENTO A LIVELLO PROFESSIONALE E APPLICAZIONI SIMILI.

NOTA: QUESTO APPARECCHIO PUÒ ESSERE IN GRADO DI FUNZIONARE A FREQUENZE NON AUTORIZZATE NELLA REGIONE IN CUI SI TROVA L'UTENTE. RIVOLGERSI ALLE AUTORITÀ COMPETENTI PER OTTENERE LE INFORMAZIONI RELATIVE ALLE FREQUENZE AUTORIZZATE NELLA PROPRIA REGIONE PER I PRODOTTI MICROFONICI SENZA FILI

ANTENA ACTIVA DIRECCIONAL PARA UHF SHURE MODELO UA870

La antena UA870 de Shure es una antena UHF direccional. Destaca un arreglo de antenas dipolo periódicas logarítmicas. Comparada con una antena de 1/2 onda omnidireccional, el patrón de captación de cardioide de la UA870 ofrece una mejor recepción de la zona de cobertura deseada y un rechazo mayor de las señales RF provenientes de fuera de la zona de cobertura.

Para compensar las pérdidas introducidas por los cables coaxiales, la UA870 tiene un amplificador incorporado que ofrece 3 ó 10 dB de ganancia, según la preferencia del usuario. El ajuste de ganancia se indica por medio de dos LED. La alimentación remota de 12 VCC para el amplificador de la antena es suministrada por un receptor UR4 ó ULX Shure o un sistema de distribución de antenas UA845 ó UA844 Shure, a través del cable coaxial de conexión.

La UA870 puede montarse en un pedestal para micrófonos, suspenderse del techo o montarse en una pared usando la escuadra adaptadora giratoria incorporacia. El UA870 es resistente a elementos del clima para usarse a la intemperie. Para obtener el rendimiento óptimo en los sistemas de diversidad, utilice dos antenas UA870.

INSTRUCCIONES DE INSTALACION

1. Determine el largo del cable necesario para conectar la antena UA870 al receptor UR4 ó ULX o al sistema de distribución de antenas UA845 ó UA844.

IMPORTANTE:
Siempre utilice cable de 50 ohmios y de poca pérdida, como el RG-8X o su equivalente. Se recomienda usar el cable UA825 de 7,6 m (25 pies) o el UA850 de 15,2 m (50 pies), o el UA8100 de 30,4 m (100 pies) de Shure.

2. Ajuste el conmutador de ganancia al valor que mejor corresponda. Si se está usando un cable coaxial de hasta 7,6 m (25 pies) de largo, usar la posición de 3 dB. Si se usa un cable de 7,6 m (25 pies) o más de largo, usar la posición de 10 dB. Para lograr acceso al conmutador de ganancia, retire la tapa de la caja del preamplificador (lado impreso) sacando los cuatro tornillos de las esquinas. Los valores de ajuste de ganancia están marcados en la tarjeta de circuitos del interior.

   NOTA: El control de ganancia de la UA870 se ajusta en la fábrica en la posición de 10 dB.

3. Conecte un extremo del cable de la antena a la UA870. Después instale la antena de manera que apunte hacia la zona de cobertura deseada. Vea la Figura 1.
4. Conecte el otro extremo del cable de la antena al receptor UR4 ó ULX o al sistema de distribución de antenas UA845 ó UA844. El LED de ganancia de la UA870 se ilumina para comprobar que la antena recibe alimentación eléctrica.

IMPORTANTE:
Siempre efectúe una prueba completa del sistema inalámbrico para comprobar la cobertura en la zona de la conferencia o ejecución. Ensaye colocando la antena UA870 en diferentes posiciones hasta encontrar la ubicación óptima.

NOTA: Para información técnica adicional, llame al Departamento de Servicio al Cliente de Shure al teléfono 1-800-434-3350. En Europa, llame al 49-7131-72140.

ESPECIFICACIONES

Gama de frecuencias RF

UA870A ..... 782-810 MHz
UA870KK ..... 838-862 MHz
UA870MB ..... 800-830 MHz
UA870MC ..... 774-782 MHz
UA870UB ..... 692-716 MHz
UA870WB ..... 470-900 MHz
UA870USTV ..... 470-698 MHz
UA870X ..... 944-952 MHz

Fuente de alimentación

Alimentación remota de 12 VCC de la conexión de cable coaxial al receptor o sistema de distribución de antenas.

Consumo de potencia

UA870 (A, KK, MB, MC, UB, X): ..... 0,81 W (12 VCC)
UA870 (WB, USTV): ..... 0,68 W (12 VCC)

Ganancia de antena

..... 7 dB típico (sobre el eje)

Ganancia de señal amplificador

UA870 (A, KK, MB, MC, UB, X):.....
Conmutador de ganancia en posición de 3 dB: .....3 dB +/- 2 dB
Conmutador de ganancia en posición de 10 dB: .....10 dB ± 2 dB

UA870 (WB, USTV):
Conmutador de ganancia en posición de 3 dB: .....(–2 dB, +1,5 dB)
Conmutador de ganancia en posición de 10 dB: .....(–1 dB, +3,0 dB)

Punto de intersección de 3er orden

(3OIP) en salida ..... Mayor que 30 dBm

Patrón de recepción

..... Direccional; de cardioide
Ancho de franja de 3 dB: ..... 100 grados

Indicadores de ganancia de amplificador

3 dB: ..... LED verde
10 dB: ..... LED rojo

Conector

..... Hembra, tipo BNC

Dimensiones

UA870 (A, KK, MB, MC, UB, X): ..... 226 mm alt. x 234 mm ancho
.....x 40,7 mm prof. (8,90 x 9,21 x 1,60 pulg)
UA870 (WB, USTV): .....316,2 mm alt. x 359,4 mm ancho x
..... 35,5 mm prof.(12,45 x 14,15 x 1,40 pulg)

Adaptador de pedestal

De acción positiva, resistente a roturas, ajustable de 0 a 90 grados, con rosca estándar de 5/8 pulg -27

Peso neto (sin cable)

UA870 (A, KK, MB, MC, UB, X): .....227 g (8 oz)
UA870 (WB, USTV): .....317 g (11,2 oz)

CERTIFICACIONES

La antena activa direccional para UHF Shure modelo UA870 cumple con los requisitos esenciales de la directriz europea 99/5/EC de RTTE y califica para llevar la marca CE. Aprobado bajo EN 301 489 Partes 1 y 9 de EMC.

IMPORTANTE

ESTE EQUIPO DE RADIO HA SIDO DISEÑADO PARA USARSE EN APLICACIONES DE ENTRETENIMIENTO PROFESIONAL Y SIMILARES.

NOTA: ES POSIBLE QUE ESTE EQUIPO FUNCIONE EN ALGUNAS FRECUENCIAS NO AUTORIZADAS EN SU REGION. POR FAVOR CONTACTE A LA AUTORIDAD NACIONAL PARA OBTENER INFORMACION ACERCA DE LAS FRECUENCIAS AUTORIZADAS PARA PRODUCTOS CON MICROFONOS INALAMBRICOS EN SU ZONA

EU DECLARATION OF CONFORMITY

We, Shure Incorporated
of 5800 Touhy Avenue
Niles, Illinois, 60714-4608 U.S.A.
Phone: (847) 600-2000
Web: www.Shure.com

Declare under our sole responsibility that the following product

Model: UA830 Description: UHF Receiver Amplifier

conforms to the essential requirements and other relevant previsions of the R&TTE Directive (1999/5/EC).

The product complies with the following product family, harmonized or national standards:
EN 301 489-1 V1.4.1 (2002-08)
EN 301 489-9 V1.2.1 (2002-08)

The technical documentation is kept at:
Shure Incorporated, Corporate Quality Engineering Division
SHURE Europe GmbH, EMEA Approval

Manufacturer: Shure Incorporated

Signed: _____ Date: 16 November 2006
Name and Title: Craig Kozokar, EMC Project Engineer, Corporate Quality Engineering Division

European Representative: SHURE Europe GmbH

Signed: _____ Date: 16 November 2006
Name and Title: Wolfgang Bilz, Dipl. Ing. (FH), EMEA Approval
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SHURE®

LEGENDARY
PERFORMANCE™

ULX STANDARD

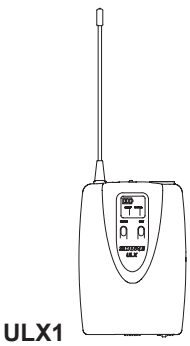
ULX Standard UHF systems represent a breakthrough in performance and price for both working musicians and professional sound installers. Multiple system configurations provide limitless options, each with a choice of legendary Shure microphone transmitters. Over 1400 selectable, pre–programmed frequencies are available, and Automatic Frequency Selection provides a straight shot to a clear channel.

ULX PROFESSIONAL

Step up to ULX Professional wireless, UHF systems for working musicians and professional sound installers. Multiple system configurations provide limitless options, each with a choice of legendary Shure microphones. Up to 1400 selectable, pre–programmed frequencies are available, and Automatic Frequency Selection provides a straight shot to a clear channel. ULX Professional systems offer more advanced features and controls, including lockable settings and group scan function.

ULXS4 DIVERSITY RECEIVER

- Automatic Frequency Selection
- Over 1400 selectable frequencies
- Predictive Diversity
- RF presence LED
- 5–segment audio meter
- 3–segment transmitter battery fuel gauge
- Multi–function LCD
- 1/2 rack design
- Detachable 1/4 wave antennas
- Durable plastic chassis
- Locking DC connector
- XLR and 1/4” outputs
- Mic/line switchable



ULX1

ULX2

ULXP4 DIVERSITY RECEIVER

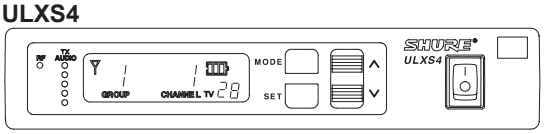
- Automatic Frequency Selection with group scan function
- Over 1400 selectable frequencies
- Predictive Diversity
- 5–segment audio meter
- 5–segment RF meter
- Advanced multi–function LCD
- 3–segment transmitter battery fuel gauge
- Squelch adjustment
- 1/2 rack design
- In–line power
- Remotable 1/2 wave antenna
- Frequency and volume lockout
- Rugged metal chassis
- Furnished rack hardware
- Locking DC connector
- XLR and 1/4” outputs

ULX1 AND ULX2 TRANSMITTERS

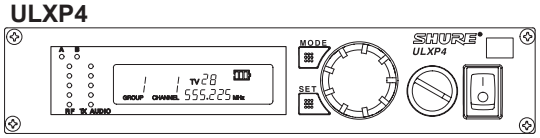
- 3–segment battery fuel gauge
- Backlit LCD shows group and channel
- Automatic Frequency Selection with group scan function
- Frequency and power settings
- Up to 1400 selectable frequencies
- Control lockout
- Predictive Diversity
- 8 hour battery life
- 5–segment audio meter
- 300 ft (92m) operating range
- 5–segment RF meter
- –20dB pad switch on ULX1

NOTE: Available frequencies depend on the applicable regulations in the country where the system is used.

ULXS4



ULXP4



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TL1025 (Rev. 3)

Printed in U.S.A.

SPECIFICATIONS

RF Carrier Frequency Range

470.000 to 865.000 MHz (Available frequencies depend on the applicable regulations in the country where the system is used). Refer to the frequency supplement supplied with the system.

Effective Range

100 m (300 ft.) under optimal conditions

NOTE: Actual working range depends on RF signal absorption, reflection, and interference

Audio Frequency Response

25 to 15,000 Hz, ±2 dB

NOTE: Overall system frequency response depends on the microphone element.

Transmitter Audio Polarity

Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on pin 2 (with respect to pin 3 of low impedance output) and the tip of the high impedance 1/4-inch output

Transmitter Gain Adjustment Range

ULX1: 25 dB

ULX2: 25 dB

Receiver Audio Output Level (±38 kHz deviation, 1 kHz tone)

XLR connector (into 600 ohm load): +3.9 dBV (line), –17 dBV (mic)

1/4 inch connector (into 3000 ohm load): –2 dBV

Impedance

ULX1 (input): 1 Megohm ULXS4, ULXP4 (output): 50 ohms at line level; 2000 ohms at mic level

Modulation

±38 kHz deviation compressor-expander system with pre- and de-emphasis.

RF Power Output

ULX1, ULX2: 30 mW maximum

Dynamic Range

>100 dB, A-weighted

RF Sensitivity

1.26 µV for 12 dB SINAD (typical)

Image Rejection

80 dB typical

Spurious Rejection

75 dB typical

Ultimate Quieting (reference ±38 kHz deviation)

>105 dB, A-weighted

System Distortion (reference ±38 kHz deviation, 1 kHz modulation)

0.3% total harmonic distortion, typical

Power Requirements

ULX1, ULX2: 9V alkaline battery; 8.4 V Nicad optional
ULXS4, ULXP4: 14 - 18 Vdc (negative ground), 550 mA

Battery Life

8 to 9 hours (with 9V alkaline battery)

Operating Temperature Range

- 20° to 49° C (- 4° to 120° F)

NOTE: Battery characteristics may limit this range.

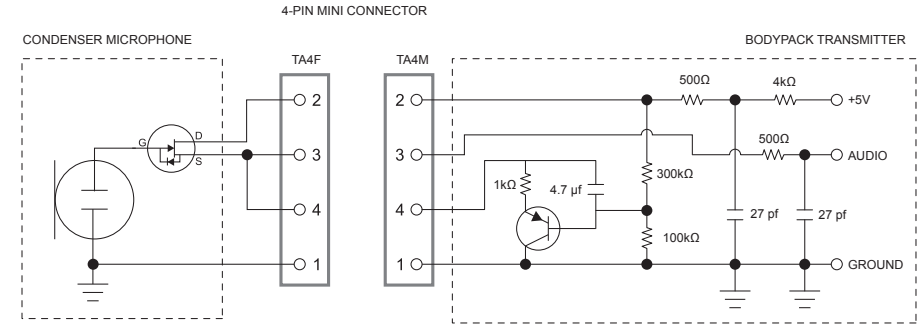
Overall Dimensions

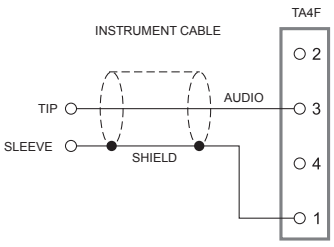
ULX1: 96.5 mm H x 67 mm W x 26.7 mm D (3.86 x 2.68 x 1.10 in.)
ULX2/SM58: 228.6 L x 51 mm Dia. (9 x 2 in)
ULX2/BETA 58: 220.9 mm L x 51 mm Dia. (8.7 x 2 in.)
ULX2/SM86: 213 mm L x 49 mm Dia. (8.4 in x 1.9 in)
ULX2/87, ULX2/BETA 87: 223.5 mm L x 51 mm Dia. (8.8 x 2 in.)
ULX4S: 43 mm H x 214 mm W x 163 mm D (1.72 in. x 8.56 in. x 6.52 in.)
ULX4P: 43 mm H x 214 mm W x 172 mm D (1.72 in. x 8.56 in. x 6.88 in.)

Net Weight

ULX1: 79 g (2.8 oz.) without battery
ULX2/58, ULX2/BETA 58: 289 g (10.2 oz.) without battery
ULX2/SM86: 251 g (8.8 oz.) without battery
ULX2/87, ULX2/BETA 87: 258 g (9.1 oz.) without battery
ULXS4: 1049 g (2 lbs, 5 oz.)
ULXP4: 1105 g (2 lbs, 7 oz.)

ULX1 Bodypack Transmitter





ULX1 Transmitter Input

	Microphone (pins 3 and 4 tied together)	Guitar (with WA302)
Connector	TA4M	TA4M
Configuration	Unbalanced, active	Unbalanced, active
Actual Impedance	75 kΩ	1 MΩ
Maximum Input Level	-4 dBV (1.82 Vp-p)	Gain Switch 0 dB: 5 dBV (5 Vp-p)
		Gain Switch -20 dB: 25 dBV (50 Vp-p)
Pin Assignments	1 = Ground 2 = +5V through 4.5 kΩ (Microphone Bias) 3 = Audio 4 = FET active load	1 = Ground 2 = No Connection 3 = Audio 4 = No Connection

ULX2 Transmitter Input

Configuration	Unbalanced, active
Actual Impedance	20 kΩ
Maximum Input Level (1 kHz, 1% THD)	12 dBV (10 Vp-p)

ULXP4, ULXS4 Receiver Audio Output

Connector	Unbalanced (1/4 in.)	Balanced (XLR)
Actual Impedance	3 kΩ	Mic. Level: 1848 Ω Line Level: 75 Ω
Pin Assignments	Tip = Hot Ring/Sleeve = Ground	1 = Ground 2 = Hot 3 = Cold
Phantom Power Protection?	Yes	Yes

ULXP4, ULXS4 Receiver Antenna Input

Connector Type	BNC
Actual Impedance	50 Ω
Nominal Input Level	–95 to –30 dBm
Maximum Input Level	+6 dBm (–20 dBm recommended)
Pin Assignments	Shell = Ground, Center = Signal
Voltage for Remote Power	12 Vdc, 150 mA maximum

Furnished Accessories

Microphone Stand Adapter (ULX2)	WA371
Grip/Switch Cover (ULX2)	WA555
Zipper Bag (ULX1)	95A2313
Zipper Bag (ULX2)	95B2313
Screwdriver (ULX2)	80A498

Optional Accessories

Passive Antenna Splitter/Combiner Kit	UA221
UHF In-Line Antenna Amplifier	UA830USTV
UHF Powered Directional Antenna	UA870USTV
UHF Antenna Power Distribution Amplifier (U.S.A.)	UA844SWB
UHF Antenna Power Distribution Amplifier (Europe)	UA844SWB-E
UHF Antenna Power Distribution Amplifier (UK)	UA844SWB-UK
33 m (100 ft.) BNC–BNC cable (RG213)	UA8100
1.8 m (6 ft.) BNC–BNC cable (RG58)	UA806
Four Antenna Rack Panel	UA440
Front Mount Antenna Kit (Includes 2 cables and 2 bulkhead adapters)	UA600
Remote Antenna Bracket with BNC Bulkhead Adapter	UA505
Rack Mount Antenna Kit for single Receiver	UA506
Rack Mount Kit for Two Receivers	UA507
Carrying Case	WA610
Microphone Adapter Cable (XLR to TA4F)	WA310

Replacement Parts

AC Adapter (120 VAC, 60 Hz)	PS41
AC Adapter (220 VAC, 50 Hz)	PS41AR
AC Adapter (230 VAC, 50/60 Hz)	PS41AZ
AC Adapter (230 VAC, 50/60 Hz, Europlug)	PS41E
AC Adapter (230 VAC, 50/60 Hz)	PS41UK
AC Adapter (100 VAC, 50/60 Hz)	PS41J
SM58® Cartridge with Grille (ULX2/58)	RPW112
BETA 58A® Cartridge with Grille (ULX2/BETA 58)	RPW118
SM86 Cartridge with Grille (ULX2/SM86)	RPW114
SM87A Cartridge with Grille (ULX2/87)	RPW116
BETA 87A Cartridge with Grille (ULX2/BETA 87A)	RPW120
BETA 87C Cartridge with Grille (ULX2/BETA 87C)	RPW122
Matte Silver Grille for SM58®	RK143G
Matte Silver Grille for SM86	RPM226
Matte Silver Grille for BETA 58A®	RK265G
Matte Silver Grille for BETA 87A	RK312
Black Grille for SM87A	RK214G
Black Grille for BETA 58A	RPM323G
Black Grille for BETA 87A and BETA 87C	RPM324G
Belt Clip	44A8013A
1/4-Wave Antenna (470 - 752 MHz)	UA400B
1/4-Wave Antenna (774 - 952 MHz)	UA400
1/2-Wave Antenna (638 - 698 MHz)	UA820L3
1/2-Wave Antenna (554 - 590 MHz)	UA820D
1/2-Wave Antenna (740 - 814 MHz)	UA820Q
1/2-Wave Antenna (470 - 530 MHz)	UA820G
1/2-Wave Antenna (746 - 784 MHz)	UA820E
1/2-Wave Antenna (572 - 596 MHz)	UA820F
1/2-Wave Antenna (578 - 638 MHz)	UA820J

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CC-222SL

Technical Documentation

PRODUCT OVERVIEW

TASCAM's most popular combination CD/Cassette recorder, the CC222SL, now supports a more robust slot loading CD transport and comes equipped with "selectable" independent outputs for CD and Cassette. The CC-222SL includes a RIAA phono input which allows direct recording from a turntable; a feature which sets the CC-222SL above all the rest. Further solidifying this source-device's reputation for flexibility is its ability to be operated as two individual recorders; or, record one source to both recorders consecutively.

Digital I/O (coaxial and optical), RCA (unbalanced) analog I/O, Auto Track Increment, MP3 playback, Power on Play, Fade In and Out, Manual Track Increment, and a variety of playback modes are just a few of the features included on the CC-222SL that you've come to expect for TASCAM.

CD-RW Recorder

Slot loading transport

Acceptable discs: CD-R, CD-RW, CD-R-DA, CD-RW-DA

High Speed Recording Media is applicable

MP3 playback

24 bit AD/DA converter

Digital input volume control

Sampling rate converter (32kHz/ 44.1kHz / 48kHz)

Unbalanced analog I/O (RCA)

COAXIAL and Optical digital I/O (CD)

Fade in and out

Auto Track Increment (via SPDIF or Audio Level)

Erase or Un-finalize of CD-RW discs

Multiple playback modes

Cassette

± 10% Pitch Control

Return to Zero Function

Dolby B Noise Reduction

Auto Reverse

General

RIAA Phono Input for recording onto CD-R/RW discs or cassette tape

Independent Output for CD and Cassette (selectable)

Continuous Play between Cassette & CD

Cassette to CD-R/RW dubbing and vice versa

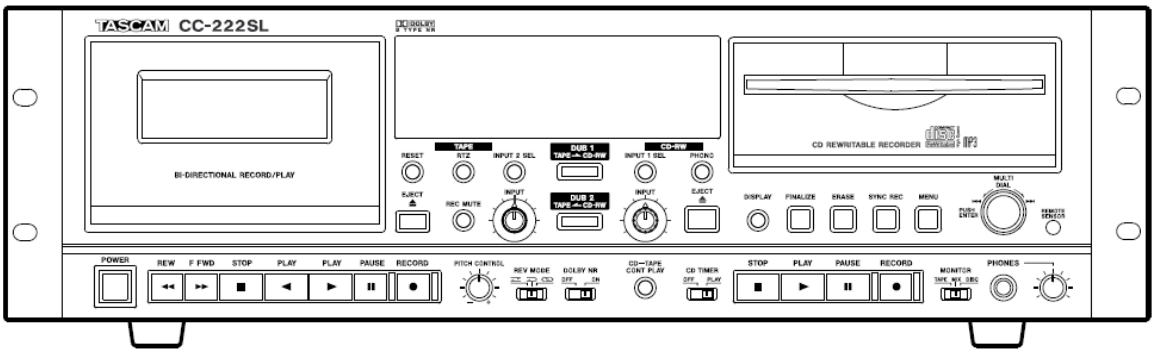
Headphone Output w/Level Control

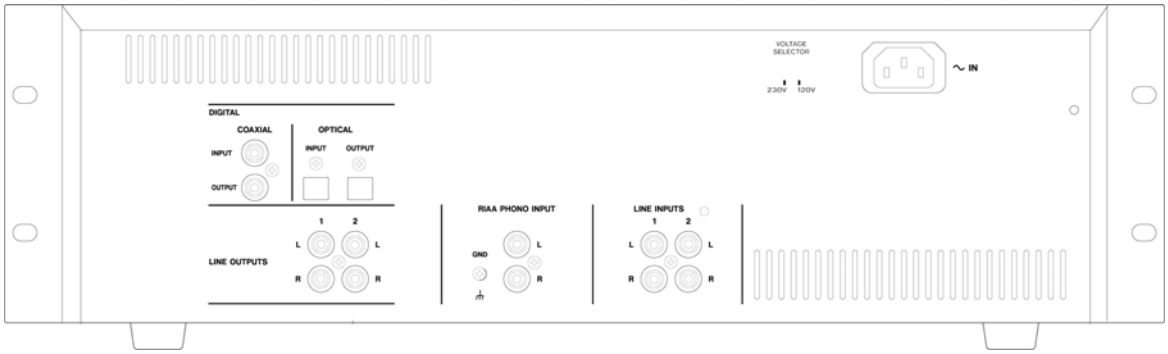
RC-222 Wireless Remote Included

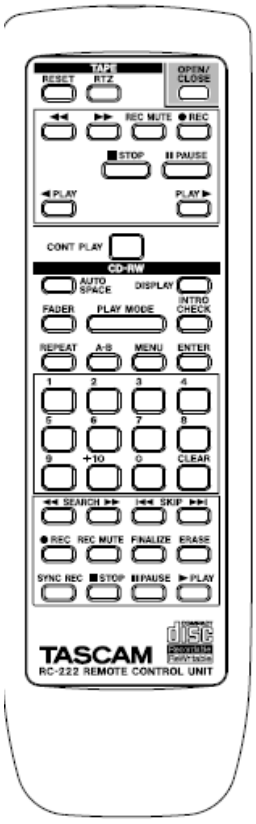
Dedicated analog input level controls

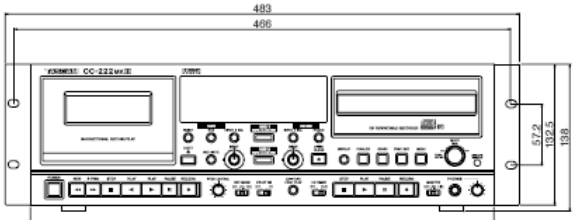
Power-on play

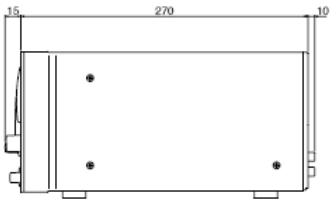
PANELS


TASCAM CC-222SL
BI-DIRECTIONAL RECORD/PLAY
CD REWRITABLE RECORDER
POWER
REW
F FWD
STOP
PLAY
PAUSE
RECORD


VOLTAGE SELECTOR
230V
120V
IN
DIGITAL
COAXIAL
OPTICAL
INPUT
OUTPUT
LINE OUTPUTS
RIAA PHONO INPUT
GND
LINE INPUTS


TAPE
RESET
RTZ
OPEN/ CLOSE
REC MUTE
REC
STOP
PAUSE
PLAY
CONT PLAY
CD-RW
AUTO SPACE
DISPLAY
FADER
PLAY MODE
INTRO CHECK
REPEAT
A-B
MENU
ENTER
CLEAR
SEARCH
SKIP
REC
REC MUTE
FINALIZE
ERASE
SYNC REC
TASCAM
RC-222 REMOTE CONTROL UNIT


483
466
172
192.5
138


15
270
10

SPECIFICATIONS

CD recorder section

Recordable discs	CD-R, CD-R-DA, CD-RW, CD-RW-DA (High speed CD-RW is supported)
Quantization bit depth	16 bit linear
Sampling frequency	44.1 kHz
Frequency response	20 Hz~20 KHz ±0.8 dB (playback) ±1.0 dB (recording)
S/N ratio	92 dB (playback) 88 dB (recording)
Dynamic range	92 dB (playback) 88 dB (recording)
Total harmonic distortion	0.006% (playback) 0.01% (recording)
Channel separation	80 dB (playback:1kHz) 75 dB (recording:1kHz)
Wow and flutter	Unmeasurable (< 0.001 %)
Digital input	Fs 32 kHz to 48 kHz (SRC ON) 44.1 kHz (SRC OFF)
Digital input	Coaxial RCA pin jack (IEC60958 Consumer use) Optical TOSLINK (IEC60958 Consumer use)
Digital output	Coaxial RCA pin jack (IEC60958 Consumer use) Optical TOSLINK (IEC60958 Consumer use)
Line inputs 1	Unbalanced input RCA pin Level -10 dBV (Full Scale -16 dB) Maximum input level +6 dBV
Input impedance	50 kØ ±10 % (unbalanced)
Line outputs 1	Unbalanced output RCA pin
Level	-10 dBV (Full Scale -16 dB)
Maximum output level	+6 dBV ±2 dB
Output impedance	600 Ø ±10% (unbalanced)

Cassette recorder section

Number of channels	4-track, 2-channel stereo
Heads Record/playback	x 1 (rotary reverse), erase x 1
Type of tapes Compact Cassette	C-60, C-90 Type I (normal)), Type II (high-position)-recording and playback; Type IV (metal)-playback only
Tape speed	4.76 cm/s (1 7/8 ips)
Motor	DC servo motor x 1
Wow and flutter	<0.19% (W.RMS)
Frequency response (overall)	50 Hz — 12.5 kHz ±3 dB (high position) 50 Hz — 10 kHz ±3 dB (normal)
Signal-to-noise ratio (overall)	46 dB (Dolby NR off) 52 dB (Dolby NR on)
Fast winding time	About 120 seconds (C-60)
Line inputs 2	Unbalanced RCA
Normal input level	0.28 V (-11 dBV)
Input impedance	50 kØ
Line outputs 2	Unbalanced RCA
Normal output level	0.46 V (-6.7 dBV)
Output impedance	1kØ

Phono input and headphones

RIAA PHONO INPUT	Unbalanced RCA (with grnd)
Cartridge type	MM (moving magnet)
Input signal level	5.6 mV
Input impedance	50 kØ
S/N ratio	60 dB (6.3 Ø)
PHONES (headphone output)	6 mm (1/4") stereo
Output level	10 mW + 10 mW (into 32 Ø)

General specifications

Power	U.S.A./Canada 120 VAC, 60 Hz U.K./Erope 230 VAC, 50 Hz Australia 240 VAC, 50 Hz
Power consumption	33 W
Dimensions	(d x w x h) 295 x 435 x 138 (mm) 11.6 x 17.13 x 5.4 (in)
Weight	7.4 kg (16.3 lb)

whirlwind

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http://www.whirlwindusa.com

PB SERIES PASSIVE PRESS BOXES
Owner's Manual

The PB Series expands mic outputs when used with line outs on PRESSPOWER2 or PRESSMITE active press boxes or any time a line level feed is available.

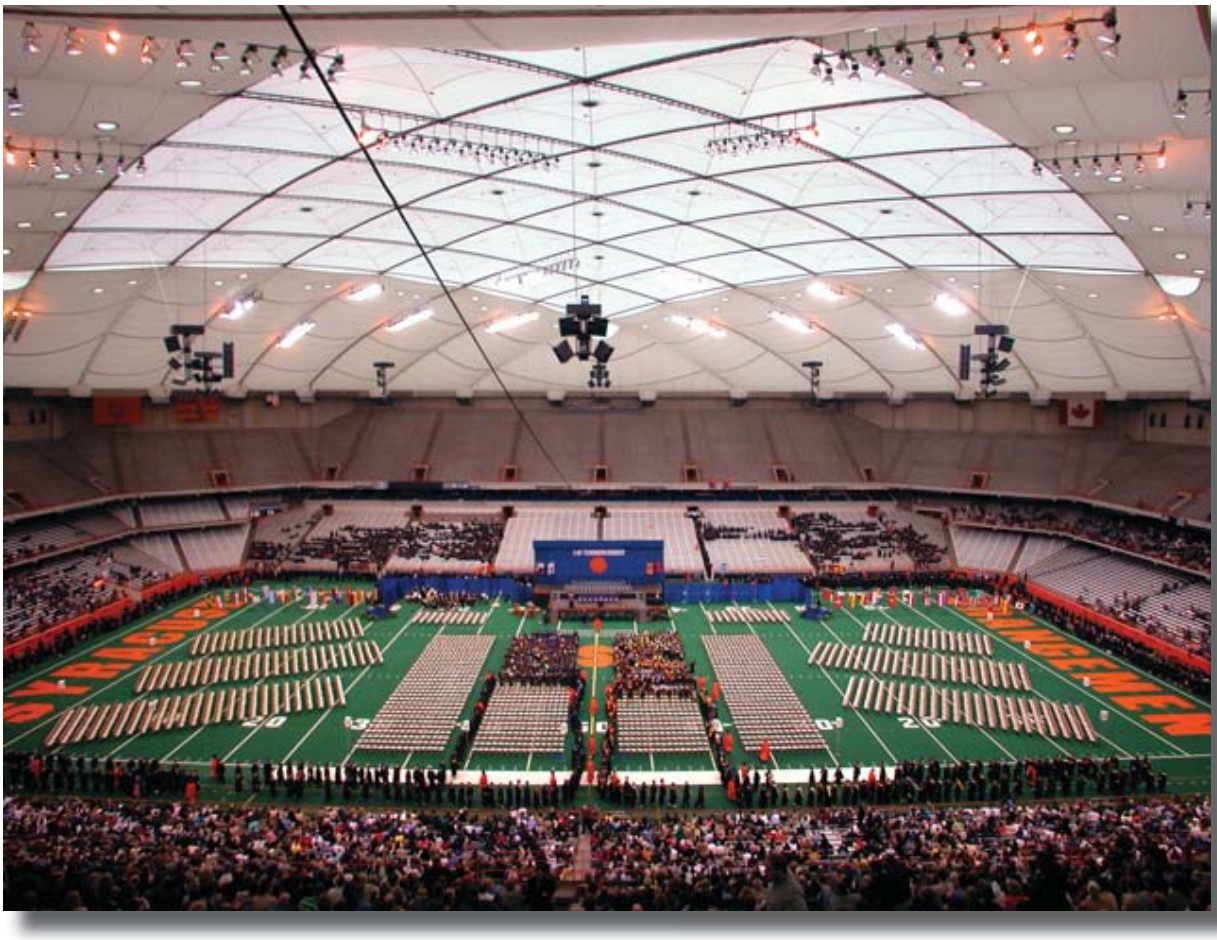
These passive units distribute one line level input to multiple mic level outputs. Each output is transformer isolated, provides excellent interchannel isolation and is ground lifted to help eliminate noise problems. Whirlwind TRSP-2 transformers are used throughout.

The boxes are constructed with rugged, cold-rolled steel. Available with 6, 12, or 24 outputs.

Input Impedance: 2k Ohms
Output Impedance: 150 Ohms
Operating Level: 0dB input = -43dB output
Channel-to-channel Isolation: 65dB

Dimensions

Model	Length	Width	Depth
PB06	7.5"	5.75"	2.75"
PB12	11.75"	5.75"	2.75"
PB24	10.5"	11.75"	2.75"



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